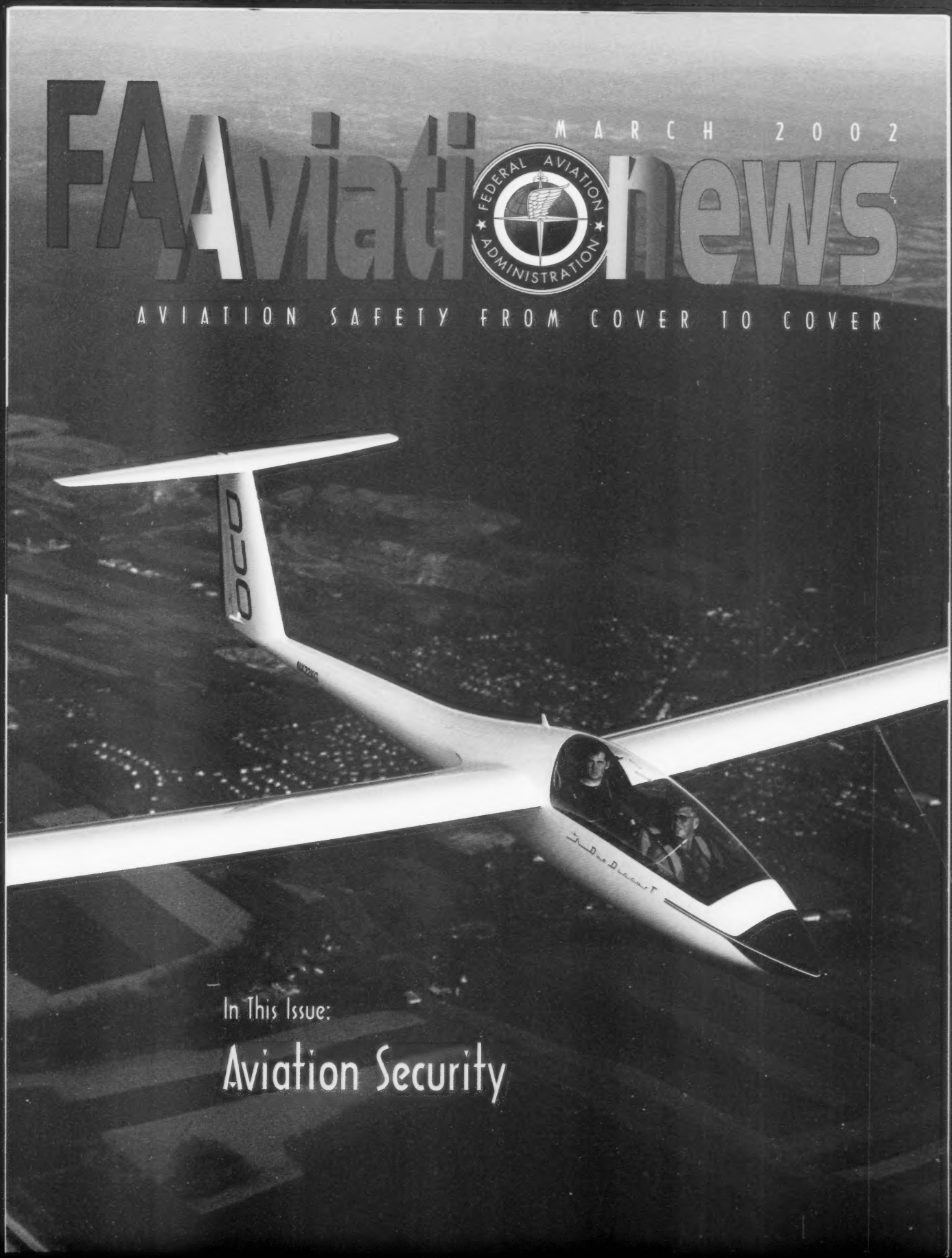

FAA Aviation News
MARCH 2002
FEDERAL AVIATION ADMINISTRATION
AVIATION SAFETY FROM COVER TO COVER
In This Issue:
Aviation Security

U.S. Department
of Transportation

**Federal Aviation
Administration**

Norman Y. Mineta, *Secretary of Transportation*
Jane F. Garvey, *FAA Administrator*
Nicholas A. Sabatini, *Associate Administrator for Regulation and Certification*
James Ballough, *Director, Flight Standards Service*
Robert A. Wright, *Manager, General Aviation and Commercial Division*
Phyllis Anne Duncan, *Editor*
Louise C. Oertly, *Senior Associate Editor*
H. Dean Chamberlain, *Forum Editor*
A. Mario Toscano, *Associate Editor/Art Director*
Deidria Shaw, *Administrative Assistant*

The FAA's Flight Standards Service, General Aviation and Commercial Division, Publications Branch, AFS–805, Washington, DC 20591; telephone (202) 267–8212, FAX (202) 267–9463; publishes FAA AVIATION NEWS in the interest of flight safety. The magazine promotes aviation safety by calling the attention of airmen to current technical, regulatory, and procedural matters affecting the safe operation of aircraft. Although based on current FAA policy and rule interpretations, all printed material herein is advisory or informational in nature and should not be construed to have regulatory effect. The FAA does not officially endorse any goods, services, materials, or products of manufacturers that may be mentioned. **Certain details of accidents described herein may have been altered to protect the privacy of those involved.**

The Office of Management and Budget has approved the use of funds for the printing of FAA AVIATION NEWS.

SUBSCRIPTION SERVICES
The Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402–9371, sells FAA AVIATION NEWS on subscription. Use the self-mailer form in the center of this magazine to subscribe.

CHANGE OF ADDRESS OR SUBSCRIPTION PROBLEMS
Send your label with correspondence to Sup Doc, Attn: Chief, Mail List Branch, Mail Stop: SSOM, Washington, DC 20402–9373. Or call GPO Customer Service at (202) 512–1800/6; FAX: (202) 512–2168.

To keep subscription prices down, the Government Printing Office mails subscribers only one renewal notice. You can tell when your subscription ends by checking the date on the second line of your mailing label. To be sure that your service continues without interruption, please return your renewal notice promptly.

**********3-DIGIT 342
FAN SMITH212J JUN96 R 1 423*
JOHN SMITH
212 MAIN ST
FORESTVILLE MD 20747

http://www.faa.gov/AVR/afs/news/index.htm

MARCH 2002

FAA Aviation news

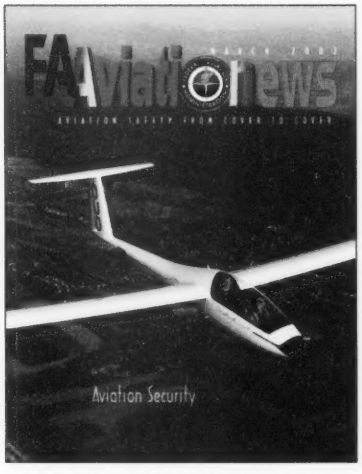
VOLUME 41 - NUMBER 2

FEATURES

1 Better Safe Than Sorry
8 Preflighting Students
10 A Reminder to Pilots
11 Aircraft Security under General Operating and Flight Rules
15 Glider Pilot Aeronautical Knowledge Review
20 Flight Training for Foreign Nationals
21 NOTAMS, Charts, P-40, and You
22 28 and Going Strong (Sun 'n Fun 2002)
25 Don't "Screw" Up

DEPARTMENTS

12 Runway Safety Corner
26 FlightFORUM
27 AvNEWS
BACK COVER Editor's Runway



FRONT COVER: A Duo Discus in flight. (Photo by John Sullivan/Aerial Associates Photography • Ann Arbor, MI)

BACK COVER: Beechjet 400A. (Raytheon Aircraft Co. photo)

Better Safe Than Sorry

by Phyllis Anne Duncan

I remember as a child begging to go to the local, small airport near the town where I first grew up, Culpeper, VA. If my father wasn't around, my uncle would take me. He had been a waist gunner on bombers in World War II and whereas he had no further aviation aspirations, he didn't mind taking me to watch airplanes take off and land. You know the scenario—the kid at the airport peering through the chain link fence. I don't remember there being a fence, there might have been, but I know that for some reason I couldn't get out to the airplanes. I could only stand and watch. Lucky me, one day,

my pediatrician showed up to go flying and recognized me. My uncle was a bit more daring than my mother might have been and agreed to let me go for a ride with the doctor. It may have been no more than once around the pattern, but it seemed like a big deal to me. At the time I'd never been further than a bus trip to Charlottesville, VA, so to be above everything was probably way cool. I do remember my mother being furious when my uncle (her brother) told her about it, and I was forbidden from ever going back to that airport and the doc got an earful from her at my next appointment. (That lasted until I was 16 and living in another town, but that's another story.)

The point of this trip into my past is that I don't want to lose that kid-at-the-airport-fence scenario. How else are we going to have pilots in 15 or 20 years unless we inspire them early, as I was, as many of you were? It's already been eroded over the years as we've gotten more security conscious. In the "good old days" we were security conscious to protect our aircraft from being stolen and used for drug running or from having expensive avionics pilfered and upsetting our insurance company. (My mother, then, was security conscious in her own way long before it ever became an issue nationally.)

Now, because of September 11th, another aspect of aviation security is becoming a priority—who has access to an aircraft and what might they want to do with that aircraft.

General aviation aircraft, despite some talking heads' opinions, are not the issue. Some would have us believe that by sheer numbers alone and without empirical proof, general aviation is a threat. Unfortunately, an accident on January 5th did nothing to help our image. Although the accident is still under investigation, the facts that can be released to the public (and, well, the media were there, anyway) are that a 15 year old student pilot took off without his instructor and without clearance from the control tower at his airport and flew into a 43-story building in downtown Tampa, FL. While the media said things like "eerily similar to September 11th" or "a gaping hole in the side of the building," it was obvious that the damage was not even on the scale of that of September 11th. However, a young man died, and whether he intended to kill himself or harm others or whether he was engaging in some adolescent act of rebellion remains to be seen. The fallout of this accident may be far in excess of its physical impact—because the impact was largely emotional to a country and a world where images can be transmitted anywhere in seconds and you have so-called subject matter experts instantly available to make pronouncements.

Almost immediately there were calls for "tighter restrictions" on general aviation. There were plenty of questions from the public, too: "How could this happen?" "Why was a 15 year old allowed to be a pilot?" "Where was his flight instructor?" A former Chairman of the National Transportation Safety Board called for psychological testing of anybody who wants a pilot certificate. Others have suggested fingerprinting all pilots, providing two ID's to rent an aircraft, and/or conducting a security background check before you can take flight instruction (not just for foreign students—for everybody). We can be expected to knee-jerk a little. The key is to not let this get out of hand and give the appearance that general aviation is so dangerous or is such a threat that the kid at the airport fence will be taken away for questioning by the local police. (Okay, so I knee-jerked a little bit.)

The brunt of the criticism after the accident on January 5th was that the student pilot was apparently given the aircraft keys by his instructor and told to conduct the preflight inspection. As student pilots, we all reached the point where the instructor trusted us enough to allow us that privilege. Those of us who are flight instructors know that at some point with every student pilot, we reached that decision as well. There are no written rules for it, and the situation was different for each student. I had an extremely trustworthy 16-year-old student, as well as a 40-something student that I didn't let out of my sight around an airplane. Age is not the defining factor of whether a pilot intends to injure someone with an aircraft. If that is his or her intent, as with a car or a gun, that person is not going to allude to the intent, and unless the person's behavior is questionable, there may be no way to spot someone who is out to injure self or others.

Accident History

Since 1983 there have been 140 incidences of stolen aircraft that later crashed. Of those 140, two were also determined to be suicides, i.e., as far as we know only two people in a 19-year period stole aircraft for the purpose of committing suicide. Between 1984 and 2001 there were 21 accidents which investigation revealed to be apparent suicides. Minus the two who stole aircraft for that purpose, that means the others either used their own aircraft or went to the trouble to rent an aircraft for that purpose.

There are some accidents every year that defy a probable cause beyond pilot error—good weather, no mechanical problem, no physical problem with the pilot revealed in an autopsy, etc. Unless a note is left behind in such scenarios, it is difficult to determine if suicide were the actual intent of the flight. After analyzing those 21 accidents, FAA came up with some potential suicide indicators. The only problem is that they're generalizations, and as I know from a suicide in my own family, the indicators may not seem significant until all you have to view them with is hindsight.

Potential Suicide Indicators

In most of the suicides by airplane, the pilot was a man; however, there were a few classified as murder-suicides where the pilot was a man and a woman was on board. There was one case with a man and a woman that was classified as a double-suicide.

A pilot at the airport who talks about trouble in his or her life needs to

... But don't send away the kids

be watched carefully. A failing marriage, faltering finances, or generalized depression intensify without treatment, and a person can reach the point where death seems like the only alternative. For a pilot, suicide in an airplane may be the preferred solution, going out using something that gave you happiness.

The suicide pilot in many of the cases flew around aimlessly or erratically for an hour or so before the suicide.

In most cases the suicide pilot picked a remote or scenic area, like a National Park or forest. In researching suicide after it affected my family, I found that this is quite often the case for someone who kills themselves because of depression rather than anger. There is a marked desire not to involve or endanger anyone else—and also the remoteness means if the person survives the initial act, they are likely to die before help arrives.

In some of the cases, the pilot showed up at the airport without having a scheduled flight time or took off on a scheduled flight and changed the routing in flight.

In the 21 accidents classified as suicides, usually three of the above criteria were present; sometimes all of them were in the scenario. In these cases, it was rare for the pilot to leave a suicide note, and in many cases the pilot radioed "engine trouble" before the crash; but the investigation revealed no problem with the engine.

The impact in a suicide accident is at high velocity and nearly vertical or straight into an obstruction or terrain.

I make a distinction here between a troubled individual bent on killing him or herself—and only him or herself—and a terrorist murderer who deliberately takes innocent lives in the act.

What Can Be Done?

Stopping a person truly bent on suicide, rather than some political agenda, is difficult. A therapist once told me, when I confessed my guilt feelings at "not being there" when my father committed suicide, that I might have stopped it that day. But he would have simply done it another day when I wasn't there. We're not trained psychologists, and we can overreact when someone may just be having a bad day. But if you see someone at the airport giving away meaningful items to near strangers or talking at length about funeral arrangements, and if you're the flight school or fixed base operator, you may want to think twice about renting that pilot an aircraft.

That aside, the main thrust of this article is security not psychology and how flight schools and FBO's can take some actions to make certain that the kid at the fence can still see aviation at its best.

After the January 5th accident, the FAA, working in concert with the major general aviation industry groups, published some suggestions and recommendations that flight schools and FBO's could use to help enhance their security. This was in the form of a Notice, N 8700.12, "Suggestions for Enhanced Security for Flight Schools and Fixed Base Operators." A Notice is issued to our aviation safety inspectors to direct them to take some action—in this case make flight schools and FBO's aware of these recommendations. The Notice is an internal FAA

document, available to the public, not binding on any operator.

As we know, flight departments run the gamut from large college or university operations, e.g., the University of North Dakota or Embry-Riddle Aeronautical University (to name only two) to specialists in flight training, such as SimuFlite or FlightSafety International, to, literally, Mom and Pop FBO's at the local community airport. Some are on towered airports, some on non-towered airports, and some share the airport with air carrier traffic. The range of suggestions tried to take in as many possibilities as practical without attempting to anticipate every possible scenario.

The list of suggestions contained in Notice N 8700.12 can be found at <www.faa.gov> under the link, "Flight School Security," but in this article we wanted to expound a bit on what each suggestion means and give some of the reasoning behind it. Remember, this is not an inclusive list. You or your local FBO might have an additional idea or are already using something that works for you. If you know of such, please share it with *FAA Aviation News*, so we can share it, in turn, with everyone else.

Flight School and FBO Considerations

First and foremost, each FBO or flight school needs to take a look at their security vulnerabilities. There has been so much published in the media and on the Internet, that a small flight operation might be able to do this on its own or involve its local sheriff's department. A larger flight department might want to hire a security assessment team to develop recommendations. At the least, establish some sort of security policies and procedures and perhaps appoint an employee who will train other employees (even pilots who regularly use the rental aircraft) on these policies and procedures and who will maintain and update them. Each of your aircraft represents a substantial investment of your capital and creates a portion of your income. It's incumbent that you safeguard them not only for security, even national security, but also for your own economic well-being.

Some of these recommendations received wide exposure in the aviation press and the issuance of the notice was also touted in the general media—with some inevitable miscues. For example, the notice issued by the FAA to its inspectors (telling them to provide the recommendations to flight schools and FBO's) expires six months from its date of issuance—that is, inspectors have six months to pass this information along, though we expect they'll be a bit faster than that. This came across in the media as the "recommendations expire in six months." The recommendations are timeless; only the actions of the FAA inspectors have a time limit. Another general media misconception was that these are "new regulations for pilots schools" or "requirements for flying schools." The Notice containing the recommendations has been characterized in some aviation media as an FAA "handbook revision," but it will not be included in the handbook which inspectors use to conduct their duties. As said several times now, these are only recommendations and suggestions, reached with the assistance of the general aviation organizations which represent you. You can ignore them, but we and others in the industry hope that you won't. Again, use the suggestions that best fit your operation.

Recommendations for Security Enhancements

(1) *Use a different ignition key from the door lock key.* As mentioned earlier, the student pilot in the January 5th accident received the key to the aircraft, and as with most general aviation airplanes, the key that opens the door starts the engine. Even if one or the other lock has been replaced, both keys are usually on the same ring. This suggestion may be simple and inexpensive to accomplish. The student gets the door key and can conduct the preflight inspection, and the instructor brings the ignition key when he or she arrives at the aircraft. A student who has already soloed may not need this limitation, and this is acknowledged in the next suggestion. If every flight school and FBO suddenly decides to re-key the door locks on all aircraft or to replace them, there might be a problem with availability. That's why we've provided a number of suggestions to choose from. Training aircraft that do not use ignition locks may have to come under one of the other suggestions, for example.

(2) *Limit student pilot access to aircraft keys* until the student pilot has reached a specific point in the training curriculum, i.e., successful completion of the pre-solo written test or the actual solo itself. The student pilot in the January 5th accident was known and trusted by the flight school. He apparently did typical line person duties—fueling aircraft, washing them, etc.—and flight schools might want to consider the level of supervision that might be needed in the future. The flight school or FBO has the authority now, and the Notice doesn't change this, to determine at what point in the training the student pilot can be trusted with the keys. What we're asking is that decision be made with an eye toward the circumstances of the January 5th accident.

(3) *Before solo, keep student pilots under the supervision of a flight instructor at all times*, regardless of the student's age. As flight instructors we've all watched and coached uncountable preflight inspections, but sticking with the aircraft while the student does this can be a preventive

measure. There have also been accidents—"real" accidents—where an impatient student couldn't wait for the CFI to get to the aircraft and started the engine. These have usually been relegated to "taxi" accidents, but in this day and age the flight instructor is in a unique position not only to train future pilots but to imbue them with a sense of security responsibility. This point in a pilot's training—where he or she gets to do an unsupervised preflight inspection—is critical to the entire training process. It's a positive reinforcement for the student and an acknowledgement of the instructor's ability to exercise good judgement. In the long run, this suggestion may be the least feasible of all of these, but temporarily using this recommendation, with an explanation of why to the student, could overcome any negative side effects. This suggestion arose from a concern from the public that uncertificated or underage people had unlimited access to an aircraft. In the current climate and given the fact that the general public has little knowledge of how flight training occurs, this is an understandable concern. Until we can better educate the general public about general aviation, we need to reassure them somehow that only trustworthy people have access to aircraft.

(4) *Consider having any student pilot check in with a specific employee*—i.e., dispatcher, aircraft scheduler, a flight instructor, or some other "management" official—before being allowed access to parked aircraft; or have the student sign or initial a form and not receive keys until an instructor or other "management official" also signs or initials. In fact, this is a standard practice right now at many businesses that rent aircraft. It's a definite check on whether the student is supposed to be at the airport and supposed to have access to an aircraft.

(5) *Establish positive identification* of any student pilot before every flight lesson. We have to show a photo ID to board a commercial airliner—actually, several times now—so why not apply this to general aviation? Again, this is a simple check. If the name of the student doesn't match the identification, hold onto the keys. Of course, this holds true for certificated pilots as well who seek to rent your aircraft, and it could go beyond verifying that the pilot has a pilot certificate and medical. You might want to consider making it a policy to look at a photo ID of any pilot not known to you who wants to use your aircraft. After the Oklahoma City bombing, truck rental businesses started not only photocopying driver's licenses but also taking a thumbprint (the convicted bomber was tied to the crime by a thumbprint on a receipt). Taking thumbprints is probably beyond the scope of a flight school or FBO's security needs, but verifying a photo ID is not.

(6) *If the student pilot is not yet a legal adult* at the time of enrollment, the enrollment application, if applicable, should be co-signed by a parent or legal guardian. I've told the story before how when I was 16 I told my parents I was at play practice after school when a friend was dropping me off at the local airport to take flying lessons. Again, with the changes we've undergone since September 11, a flight school needs to know that the underage student's parents are aware of what's going on. Liability requires it, but security might demand it. And the parent or legal guardian is the best person to know the student's state of mind. If there is trouble at school, with the parents, even with a girlfriend or boyfriend, the parent or guardian is in the position to know and advise the flight school that lessons might need to be put off until some balance is restored. The National Association of Flight Instructors (NAFI) liked this suggestion very much and added in its *NAFI e-Mentor – Special Edition*, "NAFI would further recommend that the flight school obtain from the parent signing the enrollment application, an affidavit stating that the parent is the custodial parent of the minor." An excellent point in these days of joint or shared custody and not only a further security check but also a liability consideration.

(7) *Consider establishing a school/FBO policy that the student pilot obtains the medical certificate before he or she begins flight lessons*. (A medical certificate will be denied if the individual has a disqualifying mental condition.) There is no requirement for a medical certificate until the student pilot is ready to solo a powered aircraft, but if a student pilot of any age has a mental problem that would cause the denial of a medical certificate, the flight school or FBO should know up front. Again, it can be both a liability issue or a security issue. Introductory flights with a CFI could be exempt from this policy. (See the sidebar on page 7 for the mental conditions which would disqualify pilots for medical certification.) Let me emphasize this *is not* an FAA requirement, and it will

not affect programs such as Young Eagles or Be A Pilot. This is only a suggestion or recommendation, and "introductory flights" has a broad definition. There would be no need to curtail any activity where young people are given familiarization rides during an aviation summer camp, for example, because they would not have a medical certificate. This suggestion is strictly for someone who enrolls in a course of training and should apply to student pilots of any age if a flight school or FBO wishes to use it. And, this suggestion has received most of the misinterpretation in the media and with some general aviation representatives, and I hope we've cleared some of it up here.

(8) *Secure the aircraft when you're not around.* To prevent unauthorized use of aircraft, take steps appropriate to the specific type of aircraft to secure it when it is unattended. Locks may or may not be the answer. The same with chains and padlocks. Check with your mechanic to determine what might be the best way to secure the aircraft when you're away from the airport. VERY IMPORTANT: If you do opt to use prop chains, tail ring chains, or any other device with a lock, be sure to add its removal before flight to your preflight checklist. However, securing your aircraft might be as simple as locking all the keys up in a lock box or safe at the end of the day. There is always the possibility of a break-in of the aircraft and hand-propping (and that goes for any of these recommendations), but that takes some knowledge; and the locked aircraft may be a sufficient deterrent.

(9) *Consider having an instructor or other school or FBO employee open the aircraft door and retain possession of the key* during the student pilot's preflight inspection. Again, this is a matter of trust and may not be necessary once the student has soloed, but this is an easy solution—an employee opens the door to the aircraft so that the preflight can be conducted, and the flight instructor arrives with the key when it's time to start the engine. Again, NAFI makes an excellent point, "For a small flight school with aircraft parked nearby, this may be quite feasible and readily accomplished. At larger operations…it would be difficult if not impossible to accomplish…." This is why earlier in the article, we stressed that each FBO and flight school needs to assess its scope of operations and choose from these recommendations accordingly.

(10) *Signage.* This may or may not be a deterrent to a criminal, but for the average person, a warning sign can make you think twice before doing something unauthorized. Place a prominent sign near areas of public access warning against tampering with or unauthorized use of aircraft. Also, clearly post emergency telephone numbers (police, fire, FBI) so that people may report suspicious activity. You should emphasize that people other than employees should not take action on suspicious activity but should report it to the appropriate law enforcement authority.

(11) *Look out for suspicious activity.* Train employees as well as pilots who regularly use the rental aircraft to be on the lookout for suspicious activity, e.g., transient aircraft with unusual or unauthorized modifications; persons loitering for extended periods in the vicinity of parked aircraft or in pilot lounges; pilots who appear to be under the control of another person; persons wishing to rent aircraft without presenting proper credentials or identification; persons who present apparently valid credentials but who do not display a corresponding level of aviation knowledge; any pilot who makes threats or statements inconsistent with normal uses or aircraft; or events or circumstances that do not fit the pattern of lawful, normal activity at an airport.

Conclusion

The world has changed, and we all wish it hadn't. The key for general aviation is to be proactive in the security arena, and many of you and most of the general aviation associations have already done so. You, then, are ahead of the game and congratulations to you for it. For others the thought of the least intrusive of these suggestions is anathema, and I say, the world has changed. As I said earlier, you can choose to ignore any or all of these; however, all it may take is another accident like what happened on January 5th for the public to demand action from Congress. But if the industry is proactive in appropriate incorporation of these recommendations into its operations, we might be able to forestall not only another tragic accident with similar circumstances but regulatory action.

Fortunately, we as a society, as a people, are dynamic, and change is continual, even if the cycle may be too long for some of us. We may never come full circle back to what we enjoyed before—we can work hard at trying, though—but we can work together to make general aviation more secure and, in that, assure the public that we are not, never have been, and never will be the threat.

A NAFI advisory committee, composed entirely of NAFI Master Instructors provided the comments taken from the NAFI e-Mentor.

DISQUALIFYING MENTAL CONDITIONS

(applies to all classes of medical certificates)

FAR § 67.207 Mental

Mental standards for a [first, second, or third] class airman medical certificate are:

(a) No established medical history or clinical diagnosis of any of the following:

(1) A personality disorder that is severe enough to have repeatedly manifested itself by overt acts.

(2) A psychosis. As used in this section, "psychosis" refers to a mental disorder in which:

(i) The individual has manifested delusions, hallucinations, grossly bizarre or disorganized behavior, or other commonly accepted symptoms of this condition; or

(ii) The individual may reasonably be expected to manifest delusions, hallucinations, grossly bizarre or disorganized behavior, or other commonly accepted symptoms of this condition.

(3) A bipolar disorder.

(4) Substance dependence, except where there is established clinical evidence, satisfactory to the Federal Air Surgeon, of recovery, including sustained total abstinence from the substance(s) for not less than the preceding 2 years. As used in this section:

(i) "Substance" includes: alcohol; other sedatives and hypnotics; anxiolytics; opioids; central nervous system stimulants such as cocaine, amphetamines, and similarly acting sypathomimetics; cannabis; inhalants; and other psychoactive drugs and chemicals; and

(ii) "Substance dependence" means a condition in which a person is dependent on a substance, other than tobacco or ordinary xanthine-containing (e.g., caffeine) beverages, as evidenced by:

(A) Increased tolerance;

(B) Manifestation of withdrawal symptoms;

(C) Impaired control of use; or

(D) Continued use despite damage to physical health or impairment of social, personal, or occupational functioning.

(b) No substance abuse within the preceding 2 years defined as:

(1) Use of a substance in a situation in which that use was physically hazardous, if there has been at any other time an instance of the use of a substance also in a situation in which that use was physically hazardous.

(2) A verified positive drug test result acquired under an anti-drug program or internal program of the U.S. Department of Transportation or any other Administration within the U.S. Department of Transportation.

(3) Misuse of a substance that the Federal Air Surgeon, based on case history and appropriate, qualified medical judgement relating to the substance involved, finds:

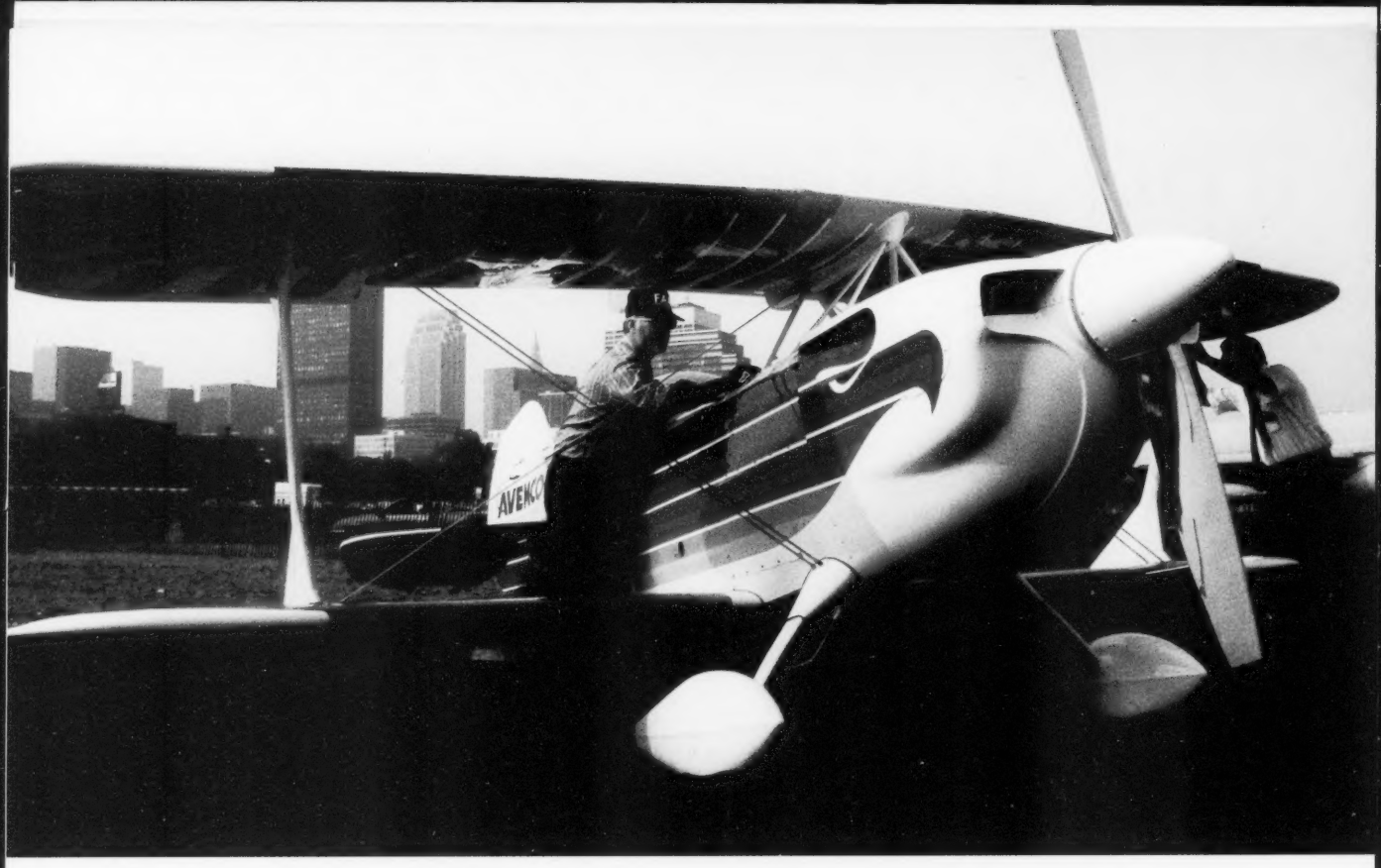
(i) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(ii) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.

(c) No other personality disorder, neurosis, or other mental condition that the Federal Air Surgeon, based on the case history and appropriate, qualified medical judgement relating to the condition involved, finds:

(1) Makes the person unable to safely perform the duties or exercise the privileges of the airman certificate applied for or held; or

(2) May reasonably be expected, for the maximum duration of the airman medical certificate applied for or held, to make the person unable to perform those duties or exercise those privileges.



Preflighting Students

by Scott Gardiner

Times have changed and we have become more security conscience at airports, especially after the recent suicide of a student pilot. This article tells how the actions of one student made a flight instructor rethink his preflight activities in relation with his students. -Editor

My first flight lesson (1968) began with the walk around inspection. My instructor pointed out all the things to look at and explained why they were important to check. Lesson number two started with me doing the walk around inspection, explaining as I went, while my instructor asked questions. When I had trouble answering a question, he would provide additional explanations. By lesson number three I could answer all of his questions. So for lesson number four and for all subsequent dual flight lessons, back at the FBO he would hand me the keys to the plane, tell me to go do the preflight, and added that he would be following me out shortly. Then he would stay in the air-conditioned office, chat with his buddies, and join me at the airplane in about 10 minutes.

When I became an instructor, I started my students out in the same manner. "You go do the preflight and I'll join you shortly" became a very routine statement. I didn't know what I didn't know.

After about 3,000 hours with students, one day I told a student to go do the preflight and I would join him shortly. Then I found there was no one in the flight school to talk to. I didn't need any more coffee, the logbooks were all up to date, and the temperature outside was really nice. So, I followed about a minute behind my student. He walked straight to the airplane, untied it, opened the pilot's door, climbed into the front seat, fastened his seatbelt, and waited for me.

When I got to the airplane I asked him why he had not done a preflight inspection. "Oh," he said, "I never do a preflight. You wouldn't put airplanes out here if they were junk. Besides, the preflight has already been done on this airplane two or three times today by other students. If there was something wrong, we'd know about it by now." I was shocked that anyone would take responsibility for his own safety so lightly. If we are going to fly any aircraft higher than we can afford to fall, surely everyone would want to know it was airworthy before taking off! I was amazed at his answer and vowed that it would never happen again with any of my students.

I stopped wasting time sitting in the office while my students did the preflight. I began accompanying all of my students when they walked out to

the airplane. I am there to make sure they do a thorough job, partly for their education and partly for my own self-preservation. Then, when they are back at the tail checking nuts and bolts and trim tabs, I climb into the cockpit and "mess something up." Simple things like unlocking the primer. Not pulling it out, just turning it to the unlocked position. Then when the students get to the engine start checklist and it says, "Primer as required and locked," and conditions are such that primer is not required, we soon find out whether or not they check to insure that it is indeed locked.

Other times I might turn a radio on (or the radio master switch on). The airplanes' battery switch is off at this time so the radio makes no noise, but the radio switch is turned on. When the student gets to the pre-start checklist and it says, "Radio off," there are many times students just assume the radio was off because it's not making any noise. It doesn't take long and they are actively insuring that the switch is indeed off.

Other times I might turn all of the light switches on. Again the airplanes' battery switch is off at this point so we're not draining the battery or overheating the lights. But when the student gets to the pre-start checklist and it says "Lights off," it is amazing how many will look at the switches, see all of them pointing in the same direction, and assume it is correct. This little exercise soon fixes that.

If the airplane is equipped with fuses, it's fun to remove one, like maybe the fuse to the fuel gauge. Then put the fuse in your pocket and replace the cap to its proper place on the panel. When the engine starts and the engine gauges come to life, it is amazing how many people take a look at them but do not see that the fuel gages read empty. They are looking, but they are not seeing. They might not see it the first time, but I guarantee they will see it the second time you do it. And that after all is the goal of this education job we're doing.

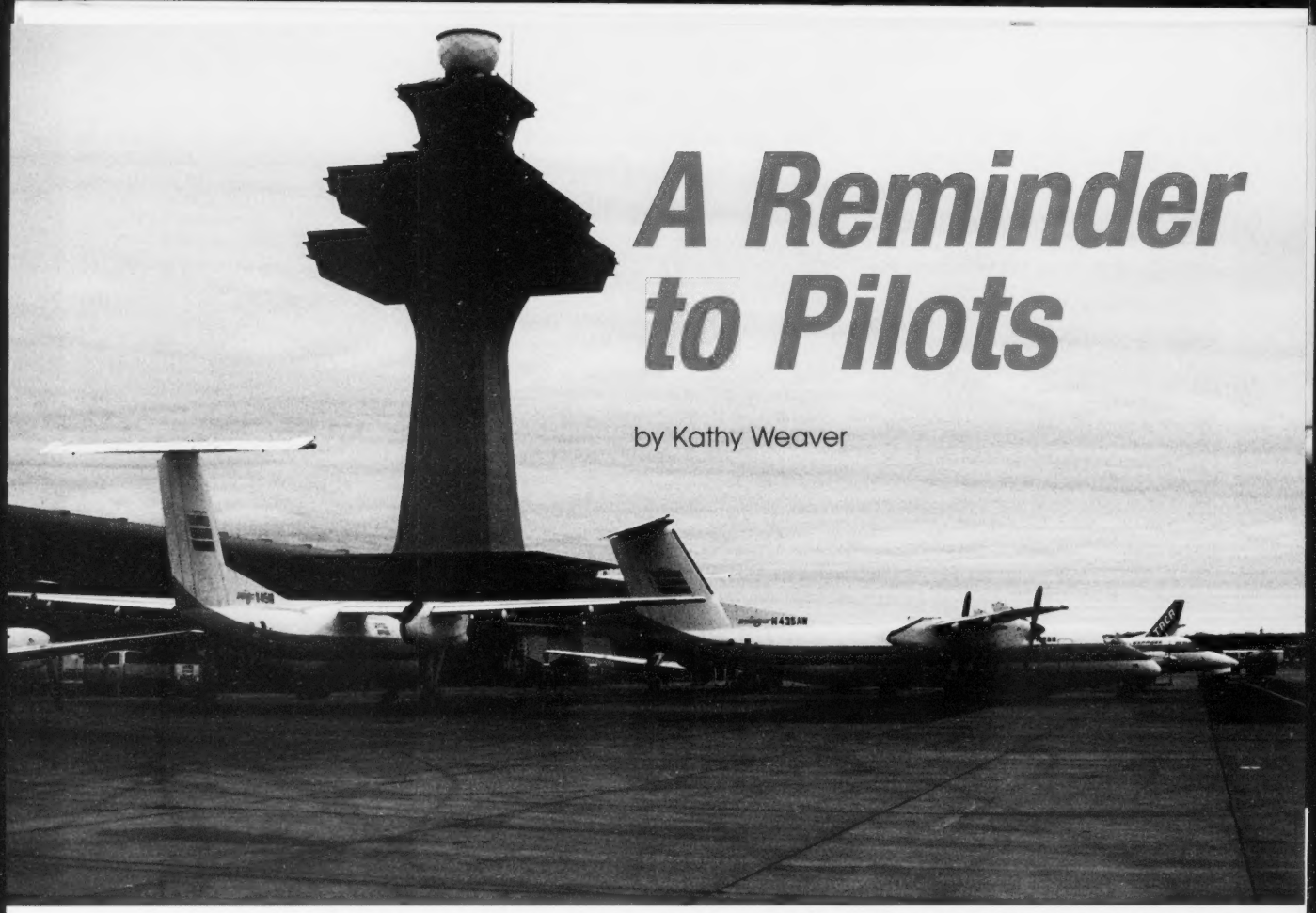
Well, it didn't take long before the students learned to enjoy this little preflight exercise. They would come into the cockpit knowing that something was amiss and took great pride in finding it. It is always something covered by the checklist. They become quite proficient at running checklists and actively checking and insuring that things are correct. They stop assuming things are correct and start thinking like a pilot in command should think.

Once they get to this point it's really underhanded, but fun, to climb into the cockpit and mess up nothing. We get all the way to the runway, all of the checklists have been completed, and the student has found nothing wrong. Before they take to the runway they invariably remark, "Okay, what did I miss?"

Obviously there are other things you can "mess up," but I think you get the idea by now. One caution in using this learning tool. Never mess up more than one thing at a time. That way it's easy to remember what it was and make sure it's fixed before takeoff!

This technique has, for me at least, proven successful in keeping me involved, in motivating students, and in helping them transition to the point that they are actively involved in making sure things are correct rather than simply assuming. It also provides for the self-preservation of both the student and the instructor. And who knows, it just might someday prevent a pre-solo student from stealing a general aviation airplane and slamming it into the side of a high rise office building.

Scott Gardiner is the Safety Program Manager at the Seattle (WA) Flight Standards District Office.



A Reminder to Pilots

by Kathy Weaver

The FAA issued Special Federal Aviation Regulation (SFAR) No. 91 on October 6, 2001, which may directly affect some general aviation pilots. This regulation was issued in response to the events of September 11th and addresses security measures for general aviation aircraft. The regulation is divided into two parts.

Part A, or the first part of SFAR No. 91, requires that specific security measures be put in place for all aircraft that enplane from or deplane into a sterile area. This part states that no aircraft operator may enplane or deplane persons into a sterile area (that area beyond the passenger-screening checkpoint) without conducting a search of the aircraft prior to departure and screening passengers, crewmembers, and other persons and their accessible property (carry-on items) prior to boarding in accordance with security procedures approved by the Administrator.

Part B, or the second part of SFAR No. 91, creates a stand-by security program for certain general aviation operators operating aircraft weighing more than 12,500 pounds certificated take-off weight. This means that if the DOT/FAA determines that a threat exists against general aviation aircraft, then general aviation aircraft operators of aircraft over 12,500 pounds will be notified via a NOTAM of specific security measures to be immediately conducted for their operations. The decision to address aircraft weighing more than 12,500 pounds was made based on the capability of those aircraft to travel further distances and because of the larger fuel tanks in such aircraft. It is important to note that there are no immediate requirements for pilots to meet under Part B at this time (with the exception of a few specific all-cargo air carriers that have been notified). This is presently just a contingency measure.

The FAA encourages pilots to inspect their aircraft closely for any areas that could be tampered with. The United States is at WAR—let's not let our guard down or become complacent. All of us are playing a vital role in contributing to national security.

Pilots may obtain an electronic copy of SFAR No. 91 using the Internet through the FAA's web page at <http://www.faa.gov/avr/armhome.htm> or by calling (202) 267-9680. It also appeared in the October 4, 2001, *Federal Register.*

Pilots may contact any FAA Regional Civil Aviation Security Division office for questions on security procedures or waivers. A list of all Regional Civil Aviation Security Division offices and contact information is available at <http://cas.faa.gov/usa.html>. Security offices are identified by the appropriate FAA regional designation (ANE for New England, ACE for Central, etc.) followed by "-700."

Kathy Weaver is the Manager of the Air Security Section in the FAA's Southern Region's Civil Aviation Security Division.

Aircraft Security under General Operating and Flight Rules

SUMMARY: This action requires certain aircraft operators to search aircraft and screen passengers, crewmembers, and other persons, and their accessible property prior to departure. This action is being taken to counter possible threats in the wake of the September 11, 2001 terrorist attacks. This action is in effect until further notice.

SFAR NO. 91 - AIRCRAFT SECURITY UNDER GENERAL OPERATING AND FLIGHT RULES

1. Applicability. This SFAR applies to:

(a) All aircraft operations in which passengers, crewmembers, or other persons are enplaned from or deplaned into a sterile area, except for scheduled passenger operations and public charter passenger operations. For purposes of this SFAR, "sterile area," "scheduled passenger operations," and "public charter" are defined in §108.3 of this chapter.

(b) Each aircraft operation conducted in an aircraft with a maximum certificated takeoff weight of more than 12,500 pounds except for those operations specified in paragraph 1(a) of this SFAR and those operations conducted under a security program under part 108 or 129 of this chapter.

2. Procedures.

(a) Any person conducting an operation identified in paragraph 1 of this SFAR must conduct a search of the aircraft prior to departure and screen passengers, crewmembers, and other persons and their accessible property (carry-on items) prior to boarding in accordance with security procedures approved by the Administrator.

(b) The security procedures approved by the Administrator for operations specified in paragraph 1(a) of this SFAR are sensitive security information. The operator must restrict the distribution, disclosure, and availability of information contained in the security procedures to persons with a need to know as described in part 191 of this chapter.

3. Compliance Date. Persons conducting operations identified in paragraph 1(a) of this SFAR must implement security procedures on October 6, 2001. Persons identified in paragraph 1(b) of this SFAR must implement security procedures when notified by the Administrator. The FAA will notify operators identified in 1(b) of this SFAR by NOTAM when they must implement security procedures.

4. Waivers. The Administrator may permit a person conducting an operation identified in paragraph 1 of this SFAR to deviate from the provisions of this SFAR if the Administrator finds that the operation can be conducted safely under the terms of the waiver.

5. Delegation. The authority of the Administrator under this SFAR is also exercised by the Associate Administrator for Civil Aviation Security and the Deputy Associate Administrator for Civil Aviation Security.

6. Expiration. This Special Federal Aviation Regulation shall remain in effect until further notice.

RUNWAY SAFETY CORNER

Managing from Measurement

by Arthur Humphries

If you think this article will tell you the gory details of this or that runway incursion—it's not. We'll let the controllers and pilots tell you about those first-hand. What we will do is take an inside look at how the National Runway Safety Program Office does business with a highly visible program, full of contention, full of opportunity, full of people who want to help, and plenty of opportunity for success or failure. - Author's Note

A lot of research has been accomplished this past year to determine the root causes of runway incursions. We all have our opinions—many are intuitive—but the research has validated that intuition and those opinions. Research is the foundation for answers. But when you're investing human and financial resources, just like any business, you want a solid foundation for decision-making. So our attitude, our management mantra, in the FAA's Runway Safety Program is, you cannot manage what you cannot measure.

There it is, the key point of this article, but let's back up and describe for you the foundation we've built for the Runway Safety Program and how that foundation supports program management by measurement. The foundation has three cornerstones:

1) A rock solid commitment from FAA Administrator Jane Garvey to stem the rising tide of runway incursions. She's effectively given us the keys to city, the administration if you will, to work with whomever we need, whenever we need, without "passing go."
2) Another cornerstone is a real commitment from key leaders of the aviation community and a lot of help (sometimes more than we want) from the Congress.
3) And we have a methodology. Our methodology comes in the form of a blueprint that provides everybody involved in the leadership of runway safety a body of practices, procedures, and rules—a set of working methods and a protocol if you will.

Blueprint

The FAA with the help of the leaders of the aviation community built a "Blueprint for Runway Safety" last year to communicate the FAA's vision for a safer runway environment. (A new one is about to be published.) The Blueprint outlines a process to understand the problem, decide upon solutions, plan actions, implement initiatives, evaluate progress, and improve performance. It is our map for the management and leadership of the aviation-wide program and is the guide by which the Runway Safety Program will achieve a measurably improved and safer runway environment.

The United States operates the largest, most complex, and the safest air traffic system in the world, yet runway safety remains a significant challenge. Why do you suppose that is? It is because of the extraordinary human component involved. Almost all known runway incursions and surface incidents can be linked to human error. The complex environment we have created at most of our towered airports compounds human frailty. A real frustration for us in the safety business is the constant market demand for growth. Growth drives the expansion of airports, often with too little room already. Traffic growth will only serve to exacerbate the likelihood of error.

What are we doing to stem the tide and work the problem of airport complexity? The Office of Runway Safety has identified seven major thrusts as a key part of the overall solution to make runways safer. They include 1) training; 2) technology; 3) communications; 4) procedures; 5) signs/markings/lighting; 6) local solutions; and 7) data, analysis, and metrics. Each thrust incorporates key initiatives created from nearly 1,000 recommendations received from the aviation community.

Applied Approach

To maintain focus and streamline action, the Office of Runway Safety drives the analytical processes, structured decision-making, systematic planning, implementation, and disciplined exercise of measuring performance, suitability and effectiveness of initiatives that result from the recommendations. This managed approach is applied in order to understand the problem, decide upon appropriate solutions, plan actions, implement initiatives, evaluate progress, and continuously improve performance. This process has at its core, by the way, the capability to fast track initiatives. Initiatives that offer clear benefits and that can be rapidly implemented are accelerated.

As the Runway Safety Program Office drives the core processes, it relies on the aviation community to share its insights, knowledge, and experience. We encourage them—and

mind you most of them don't need any encouragement—to actively participate throughout the effort. And they do that for us and with us, very well. Many of them take initiatives and provide functional solutions. Just look at AOPA's Safety Foundation web site and its new interactive trainer. Yet the fundamental responsibility to promote action and create lasting effects on reducing the risks of runway incursions remains with the FAA. We're the ones who get the spotlight when there's an accident or an incursion, not our friends and partners at AOPA, ALPA, ATA, NBAA, NAFI, AAAE, ACI, or even NATCA. We're the ones held accountable. This means that we're the ones, the people at the FAA, who have to ensure success in stemming the tide of runway incursions.

Critical Success Factors

In order to ensure success we had to develop critical success factors. Critical success factors are necessary for the successful attainment of Program goals and the ultimate Runway Safety Program vision. Let's take a moment to look at these factors:

- Leadership Support. Leaders in all segments of the aviation community with an ability to improve runway safety must make a commitment to fulfill their runway safety responsibilities.
- Stakeholder Engagement. All entities that have a stake in reducing the risk presented by runway incursions and surface incidents must participate proactively, providing the leadership and support necessary to identify, develop, and implement the solutions.
- Communication and Coordination of Effort. Leaders in the aviation community must continue to increase awareness and learn from one another. All participants must engage in routine, open, and candid communication about their activities, best practices, and experiences—both positive and negative.
- Funding and Resource Availability. Aviation community leaders must ensure they have procedures in place to determine, obtain, and mobilize the funding and other resources required to achieve Program success.
- Expedited Implementation Processes. When highly effective solutions are identified, they must be placed on a "fast track" toward implementation. Because of the nature and potential consequences of the runway safety risks, inefficiencies within the process cannot be tolerated.
- Adherence to Milestones. Milestones and schedules provide the requisite direction, urgency, and impetus to achieve progress, but only if they are adhered to.
- Complete and Accurate Reporting. Accurate information will enable the most appropriate actions to be taken and decisions to be made.

Analysis

The Runway Safety Program uses a structured, iterative, and flexible process for improving runway safety. A scientific approach is applied to understand the problem, decide upon solutions, plan actions, implement initiatives, evaluate progress, and continuously improve performance. This process has at its core analysis, decision-making, and planning.

The FAA and the aviation community need a more precise understanding of runway incursion causal factors. The discipline applied to understanding the causes of runway incursions over time will greatly enhance the effectiveness of solutions applied. Essential analytical steps include the following:

1. Collect Data. Data and information is collected from various sources, including historical evidence (past incidences and accidents), current investigations, ongoing research, current initiatives, and community experiences. Data collection is ongoing, with the community-at-large providing information and experiences to further refine the analysis.
2. Analyze Causes. Causes are being identified and analyzed with respect to the effect on fatalities, losses of property, and operational effects. Detailed evaluation of causal factors will provide more refined and accurate insight and allow better targeting of solutions.
3. Identify Risks. The risks associated with such causes have been and are continuing to be identified with consideration given to the impact and probability of occurrence. By understanding the causes, associated risks, and probability of occurrence, initiatives can be more effectively prioritized and deployed.
4. Analyze Actions. Possible initiatives or activities, which could be implemented to address specific causes, will be analyzed in detail. By drawing from past experiences or new ideas generated in the community-at-large, actions can be addressed relative to their effect on probable causes.
5. Define Measures. Such actions or initiatives can then be put forward with specific measures of suitability, performance, and effectiveness to be adopted by the Program.

The decision-making process is based on the rigor and discipline of a fact-based, structured approach. It builds on the knowledge gained to date regarding true causes, real risks, and best corrective actions. The process is iterative and it's applied to ongoing and candidate initiatives.

Prioritization

New recommendations are evaluated on a regular basis against established criteria. These criteria form the basis for prioritizing actions and expenditures. Once evaluated, initiatives are prioritized for implementation

based on several factors. Those factors include:

- Anticipated effect on high-risk runway incursions;
- Ability of the aviation community to implement; and
- Available resources and funding.

A result of increased insight into causal factors and implemented solutions is improved planning. After deciding upon the specific initiatives, the Program Office identifies the best organization to implement that initiative. The responsible organization then determines the budget and resources required, launches the initiatives, and establishes a mechanism for tracking and reporting the appropriate measures to communicate progress.

Metrics

The success of the Runway Safety Program can only be determined if the effectiveness of implemented initiatives can be measured. This feedback is vital to modifying initiatives to achieve the greatest benefit. As the Program evolves and runway incursion causal factors are better understood, Program activities will reflect that understanding and more precisely target incursion causes.

The Runway Safety Program employs three types of metrics to evaluate initiatives.

- Measures of suitability reflect the degree to which an initiative can be satisfactorily deployed. Consideration is given to operational feasibility, human factors acceptability, compatibility and interoperability with existing elements of the runway environment, availability of resources, maintainability, logistics supportability, natural environmental effects, documentation requirements, and training requirements.
- Measures of performance provide an indication of the progress being made toward deploying an initiative by measuring how much activity has occurred.
- Measures of effectiveness capture the overall degree to which any particular initiative achieves its desired effect. Measures of effectiveness indicate the relationship of an initiative's outputs to what it is intended to accomplish. They answer the question, "Is the initiative having the desired effect?"

Each initiative is being implemented with one or more measures that provide an ability to assess its effect on specific causal factors. Selection of appropriate measures of effectiveness is critical and will be a challenge. The results of these measures provide important feedback and assist in maintaining focus.

Improvements in individual initiatives, as well as the overall Program, are being made based on lessons learned and knowledge gained. Knowledge management and ongoing communications are important to obtaining continuous improvements.

Putting it All Together

Within the FAA, the Runway Safety Program Office integrates and coordinates all of the work associated with runway safety and supporting research and development activities. Outside the FAA, the Program Office has established and is maintaining relationships with industry partners to leverage their knowledge and experience, to keep them informed, to encourage their participation, and to facilitate communication.

As the single point of contact for all runway safety activities, the Program Office provides direction for the development and implementation of specific initiatives for improving runway safety. More specifically, the Program Office is doing the following things:

- Driving the processes within FAA and the aviation community to understand the problem and promote initiatives that work toward enhancing runway safety.
- Mobilizing and leveraging FAA and aviation community resources to ensure actions are taken.
- Monitoring and evaluating Program activities, establishing metrics and tracking progress for individual initiatives. Monitoring the suitability, performance, and effectiveness of all initiatives.
- Managing the FAA's Runway Safety Program budget and resources.
- Evaluating runway incursions and surface incident mitigation activities, including educational, procedural, surface environment, and technology-related solutions.
- Collecting, analyzing, and reporting on data related to runway safety.
- At each local, regional, and national meeting, the Program is disseminating the results of activities undertaken.
- Creating a process and forum for ongoing dialogue and communication of results.

Conclusion

Advancing runway safety to new levels requires more than identifying initiatives and forming partnerships. Certainly those activities are very important, but structured, analytical, measurable and collaborative action is fundamental to the Program's success. To meet the Runway Safety Program's objectives, decisions must be made in an informed manner, participants must be accountable, and management controls must be in place.

We also value creativity and innovative thinking generated by our own staff and vested partners in the aviation community. As the Program matures and goals, milestones, and actions are accomplished, the vision to achieve a safer runway environment will become reality.

Arthur Humphries is with the FAA's National Runway Safety Office. The Program's website is <www.faa.gov/runwaysafety>.

Glider Pilot Aeronautical Knowledge Review

by Frank S. Phillips, Jr.

It's a beautiful day! Let's go soaring!

How many times have you heard or said these words? Before you go, here's a refresher list of things you should remember from your student pilots days. It's also a good reminder of the many facts needed to pass the glider practical test.

Remember, for any flight, determine *runway(s) length, get all available information, and use checklists!*

WEATHER

Briefing	800-WXBRIEF: give "N" number, type of aircraft, location, planned route (if cross-country), time of flight, etc. Ask for NOTAMs (distant and local).

TERMS

AIRMET	Issued for moderate icing and turbulence, winds 30 KTS +, visibility less than 3 miles, ceilings below 1,000'.
SIGMET	Issued for all aircraft for severe/extreme turbulence, icing, obstructions to visibility.
Convective SIGMET	Issued for tornadoes, lines of thunderstorms; embedded thunderstorms; hail 3/4 inch +.
Ceilings	Lowest reported broken, obscuration, or overcast cloud layer (height AGL).
Cumulonimbus	Clouds with the greatest *turbulence*. (avoid by 20 NM)
Dewpoint	Temperature at which visible moisture forms when the air saturates.
Cloud Base	Temperature and dewpoint in upward moving air converge at rate of about 4.4° F or 2.5° C/1,000 feet (to estimate cloud base, divide Fahrenheit ground spread by 4 [Celsius, by 2.2] and multiply result by 1,000 feet).
Vision Obstructions	Are *fog, haze* (worse when flying into the sun), *rain, smoke, smog*
Front	Is a boundary between *two air masses* and is indicated by *wind change*.
Warm Front	Temperature inversions (goes up with altitude); poor visibility; smooth/stable air; stratiform clouds; drizzle; fog (forms from evaporation of precipitation).
Cold Front	Temperature goes down with altitude; good visibility; turbulence/unstable air; cumuliform clouds.
Soaring Forecast	Thermals depend on sinking cold air that forces warm air upward.
Thermal Index (TI)	The strength of thermals (*TI*) is shown by difference between the dry adiabatic lapse rate (5.4°F/3°C per 1,000' from the forecast maximum or trigger temperature) and the actual lapse rate. The greater the negative difference at a given altitude, the stronger the lift will be at that altitude.
Thunderstorms (TS)	Lifting, moisture, unstable air, and lightning (always); developing/cumulous stage = updrafts; mature = rain; dissipating = down drafts. *Avoid TS!*
Squall Line TS	Narrow band of thunderstorms and are *most intense hazard* to aircraft.
Winds	Reported aloft true direction, in knots; on the ground, reported as magnetic.

THE PILOT

I'M SAFE?	**I**llness? **M**edication? **S**tress? **A**lcohol? **F**atigue? **E**ating?
Self-Certification	Know of or reason to know of any condition that affects ability to fly safely.

Alcohol	*Do not fly w*ithin 8 hours of use; under the influence; or with more than 0.04% BAC.
To Act as PIC	Must have pilot *certificate* and had a *flight review* w/in 24 calendar months. (WINGS Program may substitute for flight review.)
To Carry Passengers	*3 takeoffs and 3 landings* as sole manipulator of glider in preceding 90 days.

THE GLIDER

A R R O W	**A**irworthiness Certificate **R**egistration Certificate **R**adio License (on international flights) **O**perating limitations **W**eight and balance information or data
Airworthiness	Owner/operator maintains, but PIC responsible to determine airworthiness.
Assembly	A pilot certificate holder may assemble or disassemble a glider if specified in the glider flight manual. *Pilot must make a maintenance record entry of the work performed with description, pilot's name, and date.*
Control Check	*Always! Perform positive control check after each assembly!* *Always! Perform a positive control check before each flight!*
Inspections	Must have annual inspection and comply with AD's. A 100 hour, if for hire.
Towline Strength	Towline: not less than 80% nor more than twice the gross weight of glider. If towline strength more than twice, install safety (weak) links: one at glider, 80% to twice gross weight; and one at tow plane, greater in strength than one at glider, but not more than 25% greater or twice glider gross weight.
Oxygen System	***PRICE*** check: ***P***ressure, ***R***egulators, ***I***ndicator, ***C***onnections, ***E***mergency

PERFORMANCE AND FLIGHT PLANNING

Weight & Balance	*Weight* = basic empty weight (including optional equipment) + occupants and gear.
Center of Gravity (c.g.)	***AFT*** - Worse stability, lower stall speed, better performance. ***FORE*** - Better stability, higher stall speed, worse performance.
Ballast (check)	If needed, *install properly!* Use to *adjust c.g.* or to meet c.g. limits. Ballast (often water) may be used to alter the best L/D speed (see below).
Density Altitude (DA)	Determines performance. As DA increases, performance will decrease. DA increases as temperatures increase; DA increases as pressure lowers.
Pressure Altitude	Set altimeter to 29.92" (or calculate: 1" Hg = approx. 1,000 feet of altitude)
L/D (Lift/Drag) Ratio	When ***L***ift over ***D***rag ratio is greatest (maximum lift, minimum drag), best glide is achieved (most horizontal distance for each foot of altitude lost). Best ***L/D*** speed varies with weight. As weight increases, best ***L/D*** speed increases. (***L/D*** is a function of wing design and is constant, regardless of weight.)
Minimum Sink Speed	Speed at which least loss of altitude occurs in a given period of time. As weight (load factor) increases, *minimum sink speed* (sink rate) increases.
Rules of Thumb	**Speed up in sink** (between thermals). **Slow down in lift** (minimum sink speed).
Speed to Fly	With sufficient altitude, when using variometer speed ring, fly down rate = to average rate of climb in last thermal, or with less sophisticated instruments, • In good conditions, fly approximately 20% above best L/D. • In poor conditions, fly the best L/D.
Cross-country Profile	Used to determine minimum enroute altitude at any particular point in flight. • ***Safety margin***: plan using 1/2 of published L/D for loss of expected lift • ***Glide ratio*** varies with wind (head wind decreases it; tail wind increases) • For a tail wind component, plan to fly using the best L/D airspeed • For a head wind component, plan to fly L/D plus 1/2 estimated head wind • Plan to leave departure airport and arrive destination airport at 1,000' AGL • Plot minimum altitude lines for glide to departure and destination airport • Lines will show go-ahead minimum altitudes for flight

AERODYNAMICS

***Angle of Attack* (AOA)**	Angle between relative wind and chord. Increasing AOA, increases lift and drag. [**NOTE:** If weight or wing loading is increased, more lift will be required].
Stalls	Occur at a specific AOA. A stall can occur at any airspeed or any attitude. *Stall speed* increases with weight (higher angle of attack to get more lift). *Turns* increase stall speed due to higher load factor.
Spins	A glider must be stalled to spin (a spin is an aggravated stall).
Three Forces in Flight	***Lift, drag*** (induced and parasite), and ***gravity*** (glider weight acting downward). ***Total drag*** = induced (decreases with speed) + parasite (increases with speed)

FLIGHT OPERATIONS

Local Procedures	*Be familiar* with local field conditions and signals (may vary from site to site)
Pre-flight Briefings	Pre-flight discussion with tow pilot on all procedures, including emergencies
Plan of action	Before each launch, have a plan of action (situational awareness)
Passengers	On how to exit; *on seat belt use,* and notify *to fasten* before takeoff/landing
Parachutes	If used, review procedures for use and brief passengers on proper use
Airspeed Indicator	White arc shows flap range Green arc shows normal range Yellow arc shows caution Red line shows never exceed speed
Magnetic Compass	*Lags North of East and West headings; and leads South of East and West*
ANDS	*On East or West heading,* ***A****ccelerate, it turns* ***N****orth;* ***D****ecelerate,* ***S****outh.*
Take-off Roll	At lift off *avoid* excessive back pressure, wait for tow plane to lift off and climb
***Towline Break*:**	*Fly glider first*, then evaluate situation: wind, obstacles, altitude, etc.: • If safe landing can be made ahead, land ahead, into the wind; • If sufficient altitude has been attained to return *safely* to field (usually at least 200 feet or more above the field elevation), return to field.
Airborne Signals	
Turns	***Left***, glider moves to right and gently pulls tow plane tail. ***Right,*** left, then same
Speed change	• *Faster*, glider rocks wings directly behind tow plane • *Slower*, glider fish tails directly behind tow plane
Spoilers Out	*Tow plane waggles rudder* (not a yawing motion).
Emergencies	• *If tow plane rocks wings, release immediately! Mandatory release!* • If *glider cannot release*, maneuver to a tow position visible to tow pilot and *rock wings*. After assuring tow pilot understands, maneuver back to normal tow position that will avoid tow rope coming back over wing. • If *tow* pilot *unable to release*, tow pilot signals with *yawing motion*.
Severe Turbulence	Maintain level flight attitude and use Va (*maneuvering speed*) or lower speed NOTE: Va (not shown on airspeed indicator) varies with weight as weight goes down, Va (*manuevering speed)* goes down.

FLIGHT ENVIRONMENT AND PROCEDURES (AIRSPACE, SECTIONALS, AIRPORTS, ETC)

Class A	(18,000' MSL to FL600) set altimeter to 29.92"; requires IFR or ATC authorization (Air Traffic Control facility having jurisdiction for the specific Class A airspace)
Class B	(Blue line) *must have ATC clearance* and *Mode C transponder to enter.*
Class C	(Magenta line) must establish 2-way communication *with ATC* & Mode C transponder.
Class D	(Dashed blue line) has operating control tower; must establish communications.
Class E	Blue tinted line indicates a floor 1,200' AGL or greater that abuts Class G airspace. Magenta tinted line indicates floor at 700' AGL. Dashed magenta line indicates Class E starts at surface (surface area Class E). Broken blue line (off set, jagged line) indicates floor of Class E greater than 700' AGL. (See aeronautical chart)
Class G	Is any airspace other than controlled airspace (outside of Class A, B, C, D, and E).
Class E or G	*Operating control tower* shown as blue airport; communication 4 NM, 2,500' AGL

MOA (Magenta colored line with magenta hash marks) military operations, use caution.
Restricted Area (Blue "**R**", blue line with blue hash marks) enter only with controlling agency okay.
Prohibited Area (Blue "**P**", blue line with blue hash marks) do not enter; it's a "NO, NO" to be there!
Gray line: Military training route with speeds greater than 250 knots; VR indicates VFR; IR, IFR
4 digits indicates flights at and below 1,500' AGL; 3 digits, from surface up.
Federal Airway 4 nautical miles either side of blue (Victor airway) line, from 1,200'AGL to FL180.
Traffic pattern Traffic pattern indicators depicts the direction that *airplanes* turn in pattern.
VASI "All red, you're dead (low); red over white, you're all right." (all white, too high)
Transponder 7700 - Emergency use
7600 - No radio
7500 - Hijack
1200 or as ATC assigns - VFR
As assigned by ATC facility - IFR (glider pilot must have instrument airplane rating)
Mode C: Over 10,000 MSL, B and C airspace; above C; and Mode C veil (30NM of Class B)
Oxygen Crew 12,500 – 14,000' MSL over 30 minutes; crew above 14,000' MSL; all over 15,000'.
ELT Test during first 5 minutes after hour; replace battery after 1 hour cumulative; charge at 50%.
Emergencies Pilot may deviate from any rule to meet an emergency and if requested and get handling *priority*, must submit *detailed report* w/in *48 hrs if requested* by ATC manager.
Declare emergencies to ATC, or if not talking to ATC. use *121.5 MHz* or *243 MHz*
EFAS For enroute weather advisories (above 5,000' AGL) *contact:* FSS *122.0 MHz*.
Right of Way Aircraft (a/c) in distress have right of way (ROW) over all other a/c; balloons over other a/c; gliders over airplanes, rotorcrafts, and airships; a/c towing or refueling over other *powered* a/c. When head-on, go to right. Overtake other a/c, pass to the right (note ridge below). Landing a/c has ROW. Lower a/c on final has ROW.
Ridge Flying *The industry guidelines for ridge soaring* (check for local conditions that vary): approach ridge at shallow angle; never pass directly over or under other gliders flying the ridge; pass slower gliders on inside toward the ridge; make all turns away from ridge into the wind; if approaching each other head on, give way to the right.
Thermals Fly at minimum sink speed, make turns in same direction as other gliders
No Aerobatics No intentional abrupt maneuver unnecessary for normal flight over *congested area* or *open air assembly*; on *Federal Airway*, *below 1,500'* AGL; or *less than 3 miles visibility.*

***Light Signals* (from control tower)**

On *GROUND*:	Green - takeoff
	Flashing Green – taxi
	Red – stop
	Flashing Red - clear runway
	Flashing White - return to starting point
In *FLIGHT*:	Flashing green - return for landing
	Green - land
	Red - give way/circle
	Flashing Red - airport unsafe
	Red/Green - use caution

Minimum Altitudes
Sparse Areas 500' AGL. No hazard to and 500' from persons/property.
Congested Areas 1,000' above highest obstacle within 2,000' radius.
Altimeter Settings Use reported barometric pressure. If none available, use field elevation. Over 18,000' MSL (must have ATC authorization), set altimeter to 29.92".

SOME ODDS AND ENDS

Parachutes *Unless each occupant is wearing an approved parachute,* a pilot carrying any person other than a crew member, may not execute any *intentional maneuver more than 60° bank, 30° pitch up/down. Always brief on use and proper fit!*
Packing *If available for emergency use, must be packed by certified and appropriately rated rigger within preceding 120 days if a chair type,* or *if other type:*
Nylon, rayon, or similar synthetic material within preceding 120 days
Silk, pongee, or other natural fiber within preceding 60 days

Survival Gear *Food, water, clothing, and equipment appropriate to planned flight environment.*

Landing Out *Be prepared for unplanned landings at all times, especially on cross-country flights. Industry standards recommend to start serious search at 3,000' AGL; at 2,000' AGL, narrow options to select a specific, safe field by 1,500' AGL*

MEDICAL

Dehydration	Water depletion: carry and drink water to replenish bodily fluids.
Fatigue	Causes below par performance; get proper rest and stop flying when tired.
Heat	Aggravates dehydration and fatigue
NOTE	*Dehydration, heat, and fatigue can impact judgement and performance*
Hypoxia	Oxygen deficiency. Go lower or use oxygen. Smoking/night increase effect.
Hyperventilation	Caused by rapid breathing, often from stress; hold breath or breathe into bag
Scanning	Scan in segments of 10° for at least one second to allow eyes to focus.
Spatial Disorientation	Temporary confusion, rely on instrument indications, not body signals.

WAKE TURBULENCE CREATED BY LARGE AIRCRAFT

Avoid large aircraft tip vortices. Avoid flight below, behind, and downwind of its flight path.

NTSB ACCIDENT AND INCIDENT REPORTS (NTSB 830)

Immediately	Must report immediately an in-flight fire, an overdue aircraft, a flight control system malfunction or failure, incapacity of a crewmember to perform duty due to injury or sickness, damage to property (other than aircraft) exceeding $25,000 (estimated).
Accidents	Must submit report within ten days
Incidents	Report *on request*.

Have a safe soaring flight!

VFR MINIMUMS *(statute mile [SM] visibility and cloud clearance)* IN AIRSPACE CLASSES

	A	B	C and D E (under 10,000' MSL) G (at night)	E (over 10,000' MSL) G (over 10,000' MSL and 1,200' AGL)	G (day: surface to 1,200' AGL)	G (day above 1,200' AGL up to 10,000' MSL)
Visibility	N/A*	3 SM	3 statute miles	5 statute miles	1 SM	1 SM
Clouds	N/A*	clear of clouds	1,000' above 2,000' from 500' below	1,000' above 1 statute mile from 1,000' below	clear of clouds	1,000' above 2,000' from 500' below

* No VFR in Class A Airspace, unless authorized by Air Traffic Control facility with jurisdiction.

Frank S. Phillips, Jr. is an Aviation Safety Inspector in the FAA Flight Standards' General Aviation and Commercial Division.

Flight Training for Foreign Nationals

For most pilots, the news was shocking. People had learned to fly for purposes of mass destruction, not for the joy and thrill of flight. Since September 11th, the world of aviation has had to relook at the way things are done.

When the President signed the Aviation and Transportation Security Act (ATSA or Public Law PL 107-71) into law last November, Section 113 imposed new restrictions and procedures for providing aviation training to aliens. Section 113 requires individual training providers, certificated carriers, and flight schools to notify the U.S. Attorney General that an alien has requested aviation training in an aircraft with a maximum certificated takeoff weight of 12,500 pounds or more and to provide certain information on such individuals. The Attorney General has designated the Director of the Foreign Terrorist Tracking Task Force to review the information. After notification, the Attorney General then has 45 days to inform the training provider whether the alien presents a risk to aviation or national security. If the Attorney General does not indicate that the person is a risk within this 45-day review period, then the training provider may proceed with training. However, the Attorney General can interrupt training if he later determines that the alien poses a risk to aviation or national security.

At the time of this magazine's publication, the Department of Justice (DOJ) provided the FAA with the following information, which is subject to change based upon DOJ determination. First, the training provider must determine whether the applicant is a U.S. citizen or an alien covered by section 113 of the ATSA. (Legal Permanent Residents of the U.S. are not subject to the requirements of section 113.) The DOJ believes that the following documents are sufficient to establish proof of citizenship or nationality:

1. A valid, unexpired U.S. passport;
2. An original birth certificate with raised seal documenting birth in the U.S. or one of its territories;
3. An original U.S. naturalization certificate with raised seal, Form N-550 or Form N-570;
4. An original certification of birth abroad, Form FS-545 or Form DS-1350; or
5. An original certificate of U.S. citizenship, Form N-560 or Form N-561.
6. In the case of training provided to a federal employee pursuant to a contract between a U.S. Government agency and a training provider, the agency's written certification as to its employee's U.S. citizenship may be accepted as sufficient proof of such citizenship.

If a training provider has questions about the documents above or any other documentation presented by a person who claims to be a citizen or national of the U.S., they may seek further guidance from the Department of Justice or the Immigration and Naturalization Service.

As the intent of this Public Law is to prevent potentially dangerous aliens from being taught how to fly aircraft, it has been determined that there are certain categories of aliens who pose little risk. The DOJ published in the Federal Register "Provision of Aviation Training to Certain Alien Trainees, Additional Categories of Provisional Advance Consent" to define these categories. The categories are:

1. Foreign nationals who are current and qualified as pilot in command, second in command, or flight engineer with respective certificates and ratings recognized by the United States for aircraft with a maximum certificated takeoff weight of 12,500 pounds or more;
2. Military pilots or other crew members who are being provided training by a component of the Department of Defense (DOD) or the U.S. Coast Guard (USCG), or pursuant to a contract awarded by a component of the DOD or USCG, in the operation of any aircraft with a maximum certificated takeoff weight of 12,500 pounds or more;
3. Military pilots or other crew members who are being provided training pursuant to an export authorization of the Department of State, provided such authorization was issued prior to February 1, 2002, and that the training was scheduled to commence prior to April 1, 2002; and
4. Commercial, governmental, corporate, or military pilots of aircraft with a maximum cer-

tificated takeoff weight of 12,500 pounds or more who must receive familiarization training on a particular aircraft in order to transport it to the purchaser or recipient, provided that the training provided be limited to familiarization and not basic flight instruction.

If the trainees comes under one of the advance consent categories, then the training provider may proceed with the training immediately and does not have to submit any identifying information to the Attorney General.

Be aware that the DOJ will pursue civil and/or criminal penalties with respect to any training provider who knowingly or negligently provides training to aliens who do not fall in one of the three advance consent categories. However, at the time publication, many of the specifics on how flight schools and training centers are to accomplish these new requirements were yet to be worked out by the DOJ. As they are developed, the FAA will advise training providers what the procedures and information to be reported are.

NOTAMS, Charts, P-40, and You

A recent NASA Aviation Safety Report highlighted an ongoing issue involving the Washington, DC, area. This is an issue that predates the current situation. The report concerned a business jet flying an approach into Baltimore Washington International Airport (BWI) soon after the September 11 terrorist attack and having military jets descend and pass behind and beneath the aircraft. At issue was whether the aircraft should have followed the flight guidance of its onboard collision avoidance system when the system reacted to the approaching military jets. One of the factors in the report concerned the flight's proximity to "Camp David" better known to the FAA as Prohibited Area 40 (P-40).

As the flight crew stated in their report, they were hesitant to make any abrupt maneuver with P-40 and fighter aircraft nearby after they received flight commands from their collision avoidance system. At the time, the flight was in contact with air traffic control. The military aircraft were communicating with their own controllers.

For flights into or through the Washington, DC, even with all of the current flight restrictions and Notices to Airmen (NOTAMS) issued advising pilots what they can and cannot do in the Washington, DC/Baltimore airspace, there is the risk some pilots may either not see or disregard the restricted and prohibited areas around Washington, DC, that have been published on the charts for years.

Now is not the time to penetrate P-40 or one of the other prohibited or restricted areas around Washington, DC.

All pilots flying through the western portion of Maryland need to review their charts for the location of P-40 whether flying VFR or IFR. As part of that review, pilots need to review the current NOTAMS concerning P-40 and the restricted area that "sits on top" of P-40.

Although one pilot suggested that the normal chart color of P-40 be removed from the VFR chart thereby making it appear white on the chart to emphasis its location, each pilot has a responsibility to make sure his or her flight complies with all current NOTAMS, temporary flight restrictions, restricted areas, and avoid all prohibited areas. This is one case where ignorance is not bliss and failure to comply with airspace requirements can be very serious.

Now for those of you flying near Crawford, TX, and Prohibited Area 49 (P-49), make sure you check the NOTAMS or know were the President is, because P-49 grows whenever the President is in residence.

FURTHER INFORMATION

Questions about providing flight training to foreign nationals should be directed to:

Director
Foreign Terrorist Tracking Task Force
U.S. Department of Justice
950 Pennsylvania Avenue, NW
Washington, DC 20530
Telephone: (703) 414-9535

The full text of the Aviation and Transportation Security Act may be downloaded from <http://thomas.loc.gov/home/terrorleg.htm> .

The Department of Justice notice, "Additional Categories of Provisional Advance Consent," can be found on the Federal Register's web site <http://www.access.gpo.gov/su_docs/aces/aces140.html> . Just type in the title in "Search Terms."

28 AND GOING STRONG

by H. Dean Chamberlain

It's 28 years young and still going strong. The "It" is the 28th annual Sun 'n Fun EAA Fly-In™ held at Linder Regional Airport (LAL), Lakeland, FL. The dates for this year's event are April 7-13.

The FAA Special Traffic Management Program NOTAM's special procedures for Sun 'n Fun are effective from 0700 to 2000 LCL from April 5-13. This date is two days before the public opening of Sun 'n Fun.

TEMPORARY FSS

The Lakeland Temporary Flight Service Station, located in the FAA Safety Center, will be operational from April 6-13 from 0600-1900 LCL. The Safety Center also houses FAA displays, safety forums, and FAA aviation safety inspectors will be available. The Safety Center display area opens at 0800 LCL each day.

SPRING DANDELIONS

Just as you can count on dandelions to pop up every spring, so can you count on *FAA Aviation News* to remind every pilot planning on flying to Sun 'n Fun of the need to read the NOTAM issued for the fly-in. Because this magazine does not have enough space to reprint the NOTAM in its entirety, we can only highlight a few of its many safety facts.

SPECIAL AIR TRAFFIC NOTAM

The NOTAM establishes special operating procedures for Linder Regional Airport, nearby airspace, and nearby airports. Readers with computer access to the Internet can find the Sun 'n Fun SATMP NOTAM on the FAA's website (www.faa.gov) or the Sun 'n Fun's website, http://www.sun-n-fun.org.

If you are going to Sun 'n Fun for the first time or the 28th time, you need to review the NOTAM in detail. The NOTAM includes changes from last year's procedures. As we have been saying for years, finding yourself number 10 in trail in the special Lake Parker Arrival Procedure to enter the traffic pattern is not the time to wonder what is going to happen next. Plus the NOTAM outlines the special holding procedures to be used at Lake Parker and other sites if holding is required at Lakeland.

Pilots are reminded to always fly in trail. Side-by-side separation is not permitted. Pilots need to be ready to fly closer to more aircraft in flight than they ever thought possible.

Although the SATMP arrival and departure procedures are not complicated, they do need to be understood very well. The procedures are designed to move hundreds of different types of aircraft safely, quickly, and predictably in and out of Lakeland by having both pilots and controllers follow the same published procedures. Knowing and following the published procedures are especially important in the case of an emergency at Lakeland or one of the outlying airports.

All pilots need to review and comply with all of the provisions of the NOTAM to try and avoid any incident or security breach that might negatively impact general aviation.

Pilots need to remember that special, reduced arrival and departure separation standards are in effect during this period.

RUNWAY AND IFR CHANGES

Following the standard VFR Sun n' Fun Lake Parker Arrival Procedure to get you to the airport, small general aviation VFR traffic can expect to land on what is normally a taxiway at Lakeland Linden Regional Airport. As noted in the NOTAM, two aircraft at a time may be landing on that taxiway redesignated as Runway 9L and 27R during this period. The width of this temporary runway is 75 feet.

As shown in the NOTAM, Runways 9L and 9R have displaced thresholds. Temporary Runway 9L will also have two designated touchdown points marked by signs in addition to its strobe-marked displaced threshold area. Aircraft landing on Runway 9L will be told to land either at the threshold, or one of the two designated touchdown points: spot 1 or spot 2. This is how three aircraft may be landing on Runway 9L at the same time, so it is important that all three aircraft know and follow the correct landing procedure.

Aircraft are not to land on the main, wide runway 9R and 27L unless specifically instructed by the control tower.

The NOTAM includes closed runway and changed instrument procedures.

All landing pilots are advised to watch for possible wave-offs signals by radio, RED smoke, or by hand signals from the red-shirted air traffic controllers located near the approach end of the runway in use.

Once an aircraft has landed, pilots are expected to clear the runway as soon as possible onto a hard surface.

The NOTAM contains detailed instructions on landing and taxiing procedures for all types of aircraft as well as the use of special cockpit parking signs.

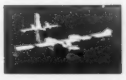
RADIO PROCEDURES

There is a limited use of radio communications to control aircraft landing or departing Lakeland. The NOTAM outlines when pilots should communicate and when they should just monitor their radios. Strict compliance with the published communication procedures will avoid any unnecessary frequency congestion while speeding up the landing or departure process.

Pilots just have to remember their aircraft type and color. While monitoring the appropriate frequency, you might hear something like this, "Red and White Sky Rocket, rock your wings for identification. Now, follow the aircraft in front of you to the airport."

AFTER LANDING

Landing pilots need to clear the runway as soon as possible onto a hard surface. The need to expedite traffic is why everyone needs to review the operating procedures outlined in



the NOTAM. It is important that aircraft remain on a hard surface unless specifically directed by the tower or flagman to do otherwise.

EAA ground personnel on the south side of Runway 9R/27L will direct aircraft to parking. Flashing arrows are also used to indicate taxi route.

RADIOS AND THE LACK THEREOF

Pilots are asked to comply with the radio procedures outlined in the NOTAM, but every pilot should contact ATC immediately if there is any question of safety of flight or in case of an emergency.

Pilots should remember some of the aircraft flying to and from Lakeland may not have radios. The NOTAM outlines the procedure for no-radio aircraft operations into and out of Lakeland. Pilots of no-radio aircraft need to send a post card requesting authorization from Wayne Boggs, FAA Special Events Manager, 4425 Sun 'n Fun Road, Lakeland, FL 33811 to operate without a radio from 0700 to 1900 local time April 5 through 13 at Lakeland.

AIRSPACE

VFR pilots should pay particular attention to the airspace information given because of the proximity of the Tampa and Orlando Class B airspaces. The NOTAM explains how to transit the Class B veils without a transponder.

VFR pilots must request and receive permission to enter Class B airspace.

MIDAIR COLLISION RISK

All pilots need to pay attention for traffic from any direction as they approach the Lakeland area. Since there is such a performance mix among the thousands of different types of aircraft flying to, through, or in the Lakeland area during this period, there is an increased chance of a mid-air collision risk. One way to reduce that risk is to fly with your landing lights and beacon or strobe lights on within 30 miles or so of Lakeland. Pilots should also monitor the appropriate ATC frequencies listed in the NOTAM when flying within the central Florida area.

Pilots should expect the unexpected because some pilots will fail to read the NOTAM, some will forget what they have read, and some will simply do something dumb.

The key to your flight safety is to keep your eyes open and be prepared to react to the unexpected.

ELT MONITORING EN ROUTE

Pilots flying to and from Lakeland should periodically monitor 121.5 MHz on their radio en route to check for any activated emergency locator transmitters (ELT) that might be reporting an aircraft accident. If you detect an ELT signal, contact the nearest air traffic control facility with the information.

EXTRA FUEL

Because of the potential delay with so many aircraft operating at Lakeland, including the risk of an accident on the field which might close the airport for a while, all pilots should make sure they have enough extra fuel on board for the flight including the appropriate IFR or VFR minimums plus enough fuel for an inflight hold of at least 30 minutes or more. Just stay within your approved weight and balance limitations.

You may want to have an alternate plan and destination in mind in case you can't get into Lakeland.

FLIGHT PLANS

Pilots on VFR flight plans are asked to extend their estimated time of arrival by 30 minutes to compensate for any unexpected traffic delays.

IFR PROCEDURES

There are special IFR procedures during this period for both IFR traffic going into and departing Lakeland as well as special procedures for southbound IFR traffic crossing Charleston (CHS) via V1.

An IFR slot reservation is required during this period for all domestic nonscheduled IFR arrivals and departures to or from the Lakeland Linder Regional Airport (LAL), Plant City Municipal Airport (PCM), Bartow Municipal Airport (BOW), Lake Wales Municipal Airport (X07), and Winter Haven Gilbert Airport (GIF). The NOTAM tells how IFR pilots can request an arrival or departure slot to or from these airports. Slots can be reserved starting at 0700 EDT Monday, April 1. Reservations will not be assigned more than 72 hours in advance.

Flight plans filed in the air and changes of destination from airborne flights to the above airports will not be accepted except in emergency situations.

IFR pilots need to review the VFR Sun 'n Fun-Lake Parker Arrival and Departure Procedures because they may have to discontinue their IFR approach and enter a VFR traffic pattern for landing when conditions permit.

VFR PROCEDURES

Inbound VFR flights are asked to close their flight plans in flight before landing because of possible delays in getting to parking in time to close their flight plans.

Pilots are requested to ensure the color of their aircraft is included in the remarks section of their VFR flight plan.

SAFETY NOTES

Because of the mix of traffic, all pilots might want to practice flying their aircraft at its minimum safe, the operative word is SAFE airspeed, before arriving at Lakeland. You should be able to control your aircraft safely at its slowest, normal cruise, and at a speed faster than normal cruise. The reason is you may be mixed in with other aircraft that may be flying slower or faster than you might normally fly. You may also need to be able to maintain your place in trail of other aircraft. But as the NOTAM states, if you cannot safely reduce airspeed to follow slower traffic, inform ATC and do not, we repeat do not, fly at any airspeed that jeopardizes your safety of flight.

Pilots should also bring their own tie-down gear and anchors if possible. You might want to carry a survival kit.

AFTER LANDING ELT CHECK

After landing and before securing your aircraft, all pilots in radio-equipped aircraft should do a final radio check on 121.5 MHz to check for an inadvertent emergency locator transmitter (ELT) activation.

SUN 'N FUN 2002

FAA Forum Schedule

"Spring Celebration of Flight" • Back to Basics

(Visit <www.faa.gov/fsdo/orl> for schedule updates)

Date & Time	0830	1000	1230	1400	1600
06 Sat	CAP's Aerospace Mission for America	**Lambert** Accidents & Mishaps	**Gibbs** Weather Briefings: What, Why, & What's Next	**Alfonso** Engine Failure Survival in 10 Easy Steps	**Sherman**
07* Sun	**Steuernagle** Operation Airspace 2002	**Grady** Why Did I Do That?	**Casey/Cilli** Runway Incursions: Causes & Prevention	**Steuernagle** Spatial Disorientation	**Dozier** Knowledge: Enhancement of Propellers
08 Mon	**Steuernagle** Fuel Awareness	**King** When Things Go Wrong	Air Show then **Meet FAA**	**Dr. Jordan** Flying the Left Seat: Getting Your Medical	**Steuernagle** Operation Airspace 2002
09 Tue	**Coleman** Aircraft Inspections: Heads or Tales	**Steuernagle** Spatial Disorientation	**King** How to Avoid Unwanted Adventures	**Steuernagle** GPS for VFR Operations	**Lockwood** The 4 Stroke Rotax Engines
10 Wed	**Steuernagle** Collision Avoidance	**NAFI** The 21st Century Professional CFI	**Steuernagle** Single Pilot IFR	**Massengale** NASA/ASRS	**Dr. Millett** Aviation Physiological Update
11 Thu	**Enlow** How to Avoid a Gear Up Landing	**Spivey** Signs, Signs, Everywhere a Sign	**Kochan** Aviation Security Practices & Procedures	**Laboda** Passenger Pre-flight for over Water	**Jones** Intro to Hot Air Ballooning
12 Fri	**Poole** A Personal Matter: Analysis of GA Fatal Accidents	**Davis** Nature of Risk: Metrics for Managing Runway Safety	**Grady** GPS FAQ's	**Jones** First Responders When Seconds Count	**Zimmer-Galler** Visual Considerations in the Aviator
13 Sat	**Schamel** Human Factors	**Dodge** Preventive Maintenance for Pilots	Flying to the Bahamas	**Finale** Recap of Sun 'N Fun 2002 Airshow & Events	

Daily from 1115 to 1230: Closed Meeting • Airshow Briefing **Balloon Launch Briefing: Sunday 0630*

Don't "Screw" Up

by Don Dodge

It's Thursday morning, the sun is shining, the birds are chirping, and the airport was stirring back to life. Yup, it's another day in paradise. On the ramp is the most beautiful Piper Arrow I think I have ever seen. Beside the *Arrow* is the aircraft owner. He stands next to his pride and joy, chest out, shoulders back and he looks at me with eyes full of confidence. He is there for a FAA checkride and knows that his gleaming red *Arrow* is about to be ramped by the FAA. But he is not worried, because after all, he gives his airplane nothing but the best.

I casually strolled around the gleaming red machine, look at the owner and then said to my FAA operations counterpart, "you can't fly this machine. I can't even give it a ferry permit." The owner looks at me with an open mouthed dumbfounded facial expression; his whole body shutters, and he utters "w-w-what!"

This man's beautiful *Arrow* had all the wrong hardware in all the wrong places. Plain non-structural, stainless steel machine screws were holding the ailerons and fuel tanks on this aircraft. The Piper parts manual calls for MS27039 structural screws in these locations. The owner was lucky. There was no accident and no one got hurt. Did the aircraft owner pay someone to install those screws or did he install them himself? Who knows? Either way, someone screwed up installing screws.

Some may ask, structural, non-structural, what is the difference? MS27039 structural screws are made with 125,000 PSI tensile strength steel. MS27039 screws have an unthreaded shoulder, which bears the shear loads. Additionally, the screw head is taller to accommodate the depth of the screw driver slot and it's marked with an X. This type of structural screw has the same design and is made of the same kind of steel as an aircraft bolt. It may be thought of as a bolt with a screw head.

Plain, stainless steel screws are usually made with 18-8 stainless steel with a tensile strength of only 80,000 PSI. However, the design of the screw weakens its tensile strength considerably. Usually, a plain machine screw has threads that are rolled to the top of the screw head and the phillips screwdriver slot often protrudes to or below the top thread of the screw. This type of stainless steel screw is normally rated for only 55,000 PSI. This design results in a screw that can easily pop its head under a load. Additionally, because they are threaded all the way to the head, there is no unthreaded shoulder to bear the shear loads.

To summarize, MS27039 screws are rated at 125,000 PSI. Plain, stainless steel machine screws are maybe 55,000 PSI. A Piper *Arrow* fuel tank is part of the load bearing structure of the wing. The fuel tank attaching screws transmit the stresses imposed on the wing and fuel tank to the rest of the aircraft structure. When looking at the aileron, it goes without saying that, if the screws attaching the ailerons to the wings fail, the pilot and passengers would have a really bad day. In this case, the fuel tanks and ailerons were attached to this aircraft with screws that were only two-fifths the required strength. That is scary!

Aviation maintenance professionals who read this might snort and say, that's basic A&P school stuff. The problem is that many times the person who screwed up installing screws is an A&P mechanic, not an aircraft owner.

The general aviation industry must face the fact that most of the general aviation aircraft fleet is becoming somewhat geriatric. A twenty-year-old airplane is considered relatively new. Who knows how many times the hardware in these airplanes has been replaced and who knows who replaced it! When replacing a screw or performing an inspection, you cannot take for granted that the screw in the hole is the correct screw for that application.

There are those who say that aircraft manufacturers get carried away in their designs and you really don't need all that expensive structural hardware. My response to that statement is, "no one asked you to engineer the thing, just fix it."

There are many different types of structural screws. The correct application of structural screws was carefully considered when the aircraft was designed. Don't take anything for granted. Open the parts catalog for the aircraft and make sure that the screw in the hole is the correct one and don't substitute hardware without consulting the aircraft manufacturer.

The problem of hardware substitution is not limited to structural screws. Hardware substitution problems are found with all types of aircraft hardware. There have been a lot of scary close calls and accidents that were caused by using the wrong hardware. Remember that it is extremely unusual for a control surface like an aileron or a big access panel to be attached to an aircraft with non-structural screws. If you see something like that, check it out carefully. Be alert, so you don't screw up.

Don Dodge is the Airworthiness Safety Program Manager at the South Carolina FSDO.

• Blowing The Whistle

I have never done before what I am about to do—I am going to "blow the whistle" in the interest of aviation safety.

At my local uncontrolled airport, which I will not identify, there is a lot of activity including much flight training. All local pilots are trained never to use the official airport name that appears in FAA publications, let's call it "Smith" airport. Instead, they are taught to call it, let's say "Skyport." (Even ATC uses "Skyport" occasionally.) All CTAF calls start and end with "Skyport" traffic, etc. This is not a problem as long as there are no transients in the vicinity, but it does pose a real threat with the occasional transients who cannot spot the traffic or find "Skyport" on any chart. The problem is exacerbated by the fact that it is accepted practice to make position reports with respect to a prominent manmade landmark, nicknamed "The Stick," instead of with respect to the airport.

I consider these practices a safety issue and have brought this matter up with the local FSDO at "Wings" meetings, the FBO, CFI's, etc. Nobody seems to be concerned or willing to do anything about this.

I'll leave it up to you to come up with an approach to resolve this issue. Changing the official name from "Smith" to "Skyport" might be the easiest way to resolve this.

"Joe Friday"
Via Internet

I think you are right on both counts. It is a safety issue, and probably the easiest solution would be to rename the airport. Although I realize that is easier said than done. If the prominent manmade landmark, "The Stick," is an important air traffic landmark, then it may be possible to have it designated on the local aeronautical chart as a VFR waypoint.

Since you did not indicate the location of the airport, it is hard to provide specific information, but you might consider the following suggestions. Did you contact your local FAA Aviation Safety Program Manager at your local Flight Standards District Office for help? You may also want to contact the airport owner or operator and suggest a name change after explaining your concerns. As you implied, since so many pilots use the incorrect name, it might be easier to change the name than try to change the habits of so many pilots, flight instructors, and others. Although, for safety, they all should be using the published name. If contacting the airport owner/operator does not work, you can contact your state's aeronautical or airports organization or your local FAA Airports District Office for help. The FAA Internet website can help you find the address and telephone number for the Airports District Office.

Finally, whenever you or anyone feels that safety is being compromised, and you feel no one is listening to your concerns, you can call the FAA's Safety Hotline at 1-800-255-1111. The toll-free hotline number was designed for reporting alleged violations of the Federal aviation regulations. Caller identification is protected from disclosure under provisions of the Freedom of Information Act. The Hotline operates Monday-Friday from 8 a.m. to 4 p.m. Eastern time. Someone will get back to you from the Hotline office as soon as possible.

• Airspace Reduction

In light of the new "Enhanced Class B" it may be necessary to change airspace designs that only mildly annoyed the VFR traffic until now. My question is "How do we get Class B airspace changed?" For example, Ogden (Utah) airport is under an extraneous arm of the Salt Lake City Class B. Until now it was not a big deal because it was easy to avoid the Class B. Now the "Enhance Class B" suddenly closed the airspace to all "pilot proficiency" flights.

David R. Erickson
Hill AFB, UT

Although Enhanced Class B airspace is history, the "...procedures for initiating, processing, issuing, and publishing rules and orders issued under section 307(a) of the Federal Aviation Act of 1958 (49 U.S.C.1348(a))..." are outlined in Subpart D-Rules and Procedures for Airspace Assignment and Use of Part 11 of 14 Code of Federal Regulations (14 CFR). Subpart D, 14 CFR Part 11, outlines, in part, the scope of the part, how to file proposals, how to file for exemptions, and how to file for petitions for rehearing or reconsideration of rules or orders, or revoking or modifying rules or orders.

FAA AVIATION NEWS welcomes comments. We may edit letters for style and/or length. If we have more than one letter on the same topic, we will select one representative letter to publish. Because of our publishing schedules, responses may not appear for several issues. We do not print anonymous letters, but we do withhold names or send personal replies upon request. Readers are reminded that questions dealing with immediate FAA operational issues should be referred to their local Flight Standards District Office or Air Traffic facility. Send letters to H. Dean Chamberlain, FORUM Editor, FAA AVIATION NEWS, AFS-805, 800 Independence Ave., SW, Washington, DC 20591, or FAX them to (202) 267-9463; e-mail address:

Dean.Chamberlain@faa.gov

SPORT PILOT AND LIGHT-SPORT AIRCRAFT NPRM PUBLISHED

The long-awaited Sport Pilot and Light-Sport Aircraft Notice of Proposed Rulemaking (NPRM) has been published for public comment. The NPRM contains the proposed sport pilot certification and the light-sport aircraft operation, maintenance, and manufacturing requirements for light-sport aircraft. Light-sport aircraft include airplanes, gliders, balloons, powered parachutes, weight-shift-control aircraft, and gyroplanes. Scheduled for publication in the Federal Register on February 5, the NPRM's 90-day comment period closes on May 6, 2002.

Written comments can be sent to Docket Management System, U.S. Department of Transportation, Room Plaza 401, 400 Seventh St. SW, Washington, DC 20590-0001. Two copies of your comments should be submitted. Electronic comments can be sent through the Internet to <http://dms/dot.gov> . All comments must include docket number FAA-2001-11133 at the beginning.

Persons may review the public docket at the above address between 9 a.m. to 5 p.m. Monday through Friday except on Federal holidays. The docket can also be viewed on the Internet at <http://dms.dot.gov> . On the search page, type in the last four digits of the docket number and click search.

The NPRM can be found on the following Internet websites: the Government Printing Office's Federal Register's web page at <www.gpo.gov> and on the FAA's web page at <http://www.faa.gov/avr/arm/nprm/nprm.htm> .

Printed copies of the NPRM can be obtained by writing to Federal Aviation Administration, Office of Rulemaking, ARM-1, 800 Independence Ave., SW, Washington, DC 20591 or by calling (202) 267-9680. The docket number or NPRM number must be included in your request.

For more information about the NPRM including frequently asked questions and answers, status updates, information about virtual public forum web site meetings, and how to get and comment on the NPRM with Internet links to other resource sites and various aviation membership groups, you can go to the FAA's Sport Pilot web site at <www.faa.gov/avr/afs/index.htm/sportpilot.htm> . The site will also include information on the expected *Federal Register* announcement about one or more virtual public meetings on the Internet where participants can make comments online about the NPRM.

AVIATION REGISTRY WEB SITE ADDS AIRMEN DATA SEARCH

Anyone with access to the Internet may now check data on all certificated airmen. The new option is on the already-popular U.S. Civil Aviation Registry web site operated by the FAA in Oklahoma City and located on the web at <http://registry.faa.gov>.

The site has many other aircraft and airmen information options and is averaging nearly 2,000 visitors per day.

The new airmen search option lets aviation industry, state and local government agencies, pilots, and other aviation enthusiasts access the basic certificate information for anyone who has been issued an FAA airman certificate. Information such as certificate type, ratings, type ratings, and limitations are included in the releasable data. This information is updated daily.

The Civil Aviation Registry in Oklahoma City manages and operates national comprehensive systems and databases for the issuance of all FAA airmen certificates, and the legal content of all airmen certification records. The Registry also directs all matters associated with the planning, development, and implementation of the regulations and systems associated with the registration of U.S. civil aircraft.

The overall Registry web site provides full sets of both the aircraft and airmen databases, various forms used to do business with the Registry, and other useful information. In addition, there are now some services that can be requested and paid for online.

Databases in each category may also be downloaded, which include all information for aircraft. For airmen, privacy act information is not included, and addresses are redacted on airmen who chose not to have their address released.

The Registry staff of 220 interacts with hundreds of thousands of customers every year. They issue some 70,000 aircraft registration certificates and 180,000 airmen certificates, answer more than 140,000 telephone calls, reserve 17,000 special aircraft registration numbers (N numbers), provide 200,000 copies of records, and update more than 108,000 addresses.

In addition, Registry systems provide information to FAA aviation safety inspectors, National Transportation Safety Board investigators, and law enforcement agencies to support aviation safety activities.

BALLOUGH NEW DIRECTOR OF FLIGHT STANDARDS

James Ballough is the new Director of Flight Standards Service, replacing Nicholas Sabatini who is now the Associate Administrator for Regulation and Certification.

Ballough comes to the position with over 27 years of aviation experience. At the FAA, he served in FAA headquarters as Acting Manager, Continuous Airworthiness Maintenance Division, and in the field as Manager of the FAA's Eastern Region's Flight Standards Division. Before joining the FAA in 1986, Jim worked with

Eastern Air Lines for over ten years, primarily in the maintenance area. In addition, Ballough gained avionics experience while working for Allied Bendix Aerospace in 1974. He holds an FAA mechanic certificate with airframe and power plant ratings. Ballough also served in the U.S. Army from 1970 to 1973.

AVOIDING DANGEROURS STORMS

The Federal Aviation Administration (FAA) and the National Oceanic & Atmospheric Administration (NOAA) have made available a new tool that will provide advanced storm information to pilots.

The National Convective Weather Forecast (NCWF), designed and developed by the National Center for Atmospheric Research (NCAR) in Boulder, CO, and MIT Lincoln Laboratory in Lexington, MA, provides pilots with a plotted map depicting the current location of convective hazards and where they will be an hour later.

The NCWF combines National Weather Service radar mosaics and cloud-to-ground lightning data into a six-color hazardous weather depiction. The NCWF is available on the Internet and National Weather Service information networks and is updated every five minutes. The graphic shows current conditions and the anticipated location of convective weather an hour into the future. The advanced storm information will make it easier for commercial and private pilots to chart their way around weather hazards in the U.S. The system is now in use.

NOAA's Aviation Weather Center has been running NCWF as an experimental product for the past 16 months and now considers it a full-fledged and reliable aviation weather forecast product. "We anticipate the NCWF will be a great value to pilots in planning and executing their flight routes by showing the quickest and easiest ways to avoid turbulent weather," Aviation Weather Center Acting Director Jack May said.

"As a private pilot, I greatly appreciate the value the NCWF adds to my decision-making process. Its timeliness and ability to help narrow down airspace that I should try to avoid because of potentially hazardous thunderstorms and turbulence are extremely valuable to me," said Don Stadtler, FAA integrated product team leader for weather and flight service systems.

Pilots, federal aviation weather briefers, air traffic control specialists, and airline dispatchers who routinely make operational decisions associated with thunderstorm hazards will use the NCWF. It is designed to filter out brief, small-scale storms that are not a hazard to aviation or are not likely to persist for an hour. On-board radar equipment and National Weather Service radar images help pilots and controllers detect and avoid those small-scale storms.

The National Convective Weather Forecast may be viewed on the Internet at <http://cdm.awc-kc.noaa.gov/ncwf>.

ARE YOU IN COMPLIANCE?

Sun 'n Fun represents one of the largest gatherings of general aviation pilots and aircraft in the world. As such, it would be interesting to see how many of those pilots and aircraft are in compliance with two important regulations. In fact, it would be interesting to see how many pilots and their aircraft are in violation of both regulations. No, this is not a guessing game. The regulations deal with change of address notifications. They are 14 Code of Federal Regulation (14CFR) §§47.45, Change of address and 61.60 Change of address.

The first change of address, 14CFR§47.45 states in part that "Within 30 days after any change in his permanent mailing address, the holder of a Certificate of Aircraft Registration for an aircraft shall notify the FAA Aircraft Registry of his new address. A revised Certificate of Aircraft Registration is then issued, without charge."

The second change of address, 14CFR§61.60 states "The holder of a pilot, flight instructor, or ground instructor certificate who has made a change in permanent mailing address may not, after 30 days from that date, exercise the privileges of the certificate unless the holder has notified in writing the FAA, Airman Certification Branch, P.O. Box 25082, Oklahoma City, OK 73125, of the new permanent mailing address, or if the permanent mailing address includes a post office box number, then the holder's current residential address."

There are other address change notification for other types of FAA certificate holders, but these are the big two that might apply to most general aviation pilots and aircraft owners.

In addition, aircraft owners of aircraft equipped with 406 MHz emergency locator transmitters (ELT) should notify the National Oceanic and Atmospheric Administration (NOAA) of their change in address as outlined in the ELT documents or on NOAA's Internet web page.

So, are you in compliance? Are you legal to fly?

CALENDAR OF EVENTS

May 4-5,
Eighth Annual Great Valley Fly-In, Woodland, CA

The community event at Watts-Woodland Airport will feature over 100 aircraft on display, pancake breakfasts, paper airplane contests, remote controlled aircraft demonstrations, and more.

For information call (530) 662-9631 or visit the event's web site at <www.woodlandaviation.com>

Editor's Runway

from the pen of Phyllis-Anne Duncan

The Inevitable Rite of Spring

Since Associate Editor Chamberlain used the "dandelion" cliché in the article on Sun 'n Fun on page 22, I'm at a loss for just the right, trite phrase to herald the coming of Spring and what that might mean to flight safety.

Over the years I've extolled the WINGS program and adding a new rating to your certificate as ways to overcome the stiffness that your flying skills may have attained over the winter. All of that still holds true, and I'm still a big advocate of the WINGS Program—every year fly for three hours with an instructor, attend a safety meeting, then get "credit" for a flight review, not to mention receiving this nifty little lapel pin that tells everyone YOU are a pilot. Way cool and, some statistics have shown, beneficial, even if it is to your wallet in reduced insurance costs.

This Spring, many pilots who might normally have continued flying through the winter weather, are coming off being grounded, or grounded themselves, for a longer than expected period because of airspace restrictions in place as a result of the September 11 attacks. (Pilots at three airports in the Washington, DC area may have suffered the most from that.) That "forced absence" might make this Spring's recurrency more critical than in the past. If you're like a student pilot friend of mine who put his training on hold until "everything just calms down," you may be eager to take to the skies again. Don't let that urge overcome your judgement, and all us pilots know that urge, especially after not having been in the air for a long time, can be just as powerful as what the birds and the bees are engaging in this Spring.

This is a good time to take in an Aviation Safety Program seminar to meet a requirement for your WINGS, and just as good a time to have a CFI check you out to make certain all the cobwebs of winter have been swept away. If you're at Sun 'n Fun, go to one of the programs at the FAA Aviation Safety Center. The schedule at Sun 'n Fun or at Oshkosh features some of the most interesting and knowledgeable people in aviation. You can learn from them—and have some fun while you're at it. (If there's a preflight contest being offered—try it. They're one of my eternal frustrations, but I'm a sucker for punishment.)

This is a good time to add an instrument rating if you don't already have one. If you do, check and see if you are current or if it's time for a competency check. Instrument flying hones your precision and helps you deal with weather related emergencies in a safe manner.

How about that multi-engine rating? Or glider? Or balloon? Or helicopter? (I had to add that, or a vast number of my colleagues would be upset.) Coming off a winter of discontent, taking instruction in a new, for you, category of aircraft can round out your flying skills, help you look at aviation with new eyes.

You might be a candidate for a flight instructor certificate. You may not have ever thought about teaching other people how to fly, but, trust me, if you can teach someone else how to fly, you can really fly. The predicted shortage of pilots for corporate and airline operations is closer than ever now, and you could participate in training the next generation. You could BE the next generation. (One of the ways to build time to be qualified for the airlines is flight instructing.)

Spring has always been associated with renewal, whether it's perennials peeking again from the soil or that pair of doves that hangs around the airport building a new nest for this year's eggs, or whether it's a pilot renewing his or her skills. Maybe you're content with the ratings you have, but practice makes safe. Foremost, Spring holds promise for growth—colorful blooms on the flowers, the incessant chirps of the new crop of birds, or a new or improved skill of a pilot.

Instead of a medieval strut around a Maypole, go on out and do what famous aerobatic pilot Sean Tucker calls "sky dancing." Take back the sky—the sight of it is welcoming again, its wounds from September 11 slowly healing. It's your rite—or right—of Spring.

'Til next time...

United States
Government
Printing Office

Superintendent
of Documents

Washington, D.C. 20402

Official Business
Penalty for Private Use $300

PRESORTED STANDARD
POSTAGE & FEES PAID
GPO
PERMIT NO. G-26

DO NOT DELAY -- CRITICAL TO FLIGHT SAFETY!